



Department of Veterans Affairs Office of Inspector General

Healthcare Inspection

Prosthetic Limb Care in VA Facilities

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Abbreviations

ACT	Amputation Care Team
APOC	Amputation Point of Contact
ASoC	Amputation System of Care
CI	confidence interval
DASH	Disabilities of the Arm, Shoulder, and Hand
DD214	<i>Certificate of Release or Discharge from Active Duty</i>
DoD	Department of Defense
FY	fiscal year
ICD-9-CM	<i>International Classification of Diseases, Ninth Revision, Clinical Modification</i>
LC Database	an OIG database with information on nearly 500,000 veterans
NOS	not otherwise specified
OEF	Operation Enduring Freedom
OHI	Office of Healthcare Inspections
OIF	Operation Iraqi Freedom
OIG	Office of Inspector General
OND	Operation New Dawn
PANS	Polytrauma Amputation Network Sites
PSAS	Prosthetic and Sensory Aids Service
PTSD	post-traumatic stress disorder
RAC	Regional Amputation Center
TAPES	Trinity Amputation and Prosthesis Experience Scale
TBI	traumatic brain injury
VBA	Veterans Benefits Administration
VHA	Veterans Health Administration
VISN	Veterans Integrated Service Network

Contents

	Page
Executive Summary	i
Introduction	1
Purpose	1
Background	1
VA Healthcare System	1
Amputations	1
Prosthetics	1
VA Amputation Services	2
VA/DoD Collaboration	6
VA Disability Compensation	6
Scope and Methodology	7
Survey of VA ASoC Facilities	8
Study Populations.....	8
LC Database Veteran Population.....	8
VA Disability Compensation.....	9
VA and DoD Treatment Information and Vital Status	9
DoD OEF/OIF/OND Amputee Population.....	11
Sample Design for In-Person Visits to OEF/OIF/OND Veterans with Lower Limb Amputations	11
In-Person Visits to OEF/OIF/OND Amputees with Lower Limb Amputations	12
Assessment Instruments	13
Modified TAPES	13
QuickDASH.....	13
Timed Up and Go Test.....	13
Telephone Interviews of OEF/OIF/OND Amputees with Upper Limb Amputations Only	14
Statistical Analyses.....	14
LC Database Population.....	14

OEF/OIF/OND Amputee Database Population	15
Results and Conclusions	17
Issue 1: All Required Prosthetist and Orthotist Staff in VA RACs and PANS and All Their Prosthetic Laboratories Were Certified	17
1. Credentialing of VA Prosthetist and Orthotist Staff	17
2. Prosthetic Laboratories Certification and Services Provided	17
3. Prosthetic Laboratories Workload.....	17
Conclusions	17
Issue 2: Veterans with Amputations are a Complex Population with a Variety of Medical Conditions and are Significant Users of VA Healthcare Services, Not Just Prosthetic Services	18
Summary of Findings	18
Details of Findings	18
1. Baseline Characteristics of the Study Population	18
2. Status of the Veteran Cohorts as of September 30, 2011	20
3. Transition to VA Health Care after Separation from Active Duty	22
4. Burden of Diseases among Veteran Cohorts	23
5. Veteran Cohorts' Travel Time and Distance to VA Care.....	31
Conclusions	32
Issue 3: Characteristics of OEF/OIF/OND Amputee Population and OEF/OIF/OND Amputee Veterans' Functional Status, Psychosocial Adjustment, and Satisfaction with VA Care.....	33
Summary of Findings.....	33
Details of Findings	33
1. Characteristics of OEF/OIF/OND Amputee Population	33
Demographic and Limb Loss Characteristics	36
Burden of Diseases	40
Transition to VA Health Care after Separation from Active Duty	42
2. Functional Status and Psychosocial Adjustment of the OEF/OIF/OND Amputee Veterans	42
Psychosocial Adjustment by OEF/OIF/OND Veterans with Amputations	46
Limitations in Activities by OEF/OIF/OND Veterans with Amputations	50

Prosthesis Satisfaction by OEF/OIF/OND Veterans with Amputations	53
Disability/Symptoms by OEF/OIF/OND Veterans with Upper Limb Only Amputation	54
Timed Up and Go Evaluation Results for OEF/OIF/OND Veterans with Lower Limb Amputation	61
3. Open Comments by the OEF/OIF/OND Amputee Veterans	62
4. Veteran Amputees' Travel Time and Distance to VA Care	66
Conclusions	67

Appendixes

A. ICD-9-CM Codes and Clinic Stop Codes Used for Defining Prosthetic Service ...	69
B. Under Secretary for Health Comments	70
C. OIG Contact and Staff Acknowledgments	76
D. Report Distribution	77

Executive Summary

Introduction

At the request of the Chairman of the House Committee on Veterans' Affairs, the VA Office of Inspector General (OIG) Office of Healthcare Inspections (OHI) conducted a review to evaluate the Department of Veterans Affairs' (VA) capacity to deliver prosthetic care. We assessed VA credentialing requirements for prosthetists and orthotists; the demand for health care services; and psychosocial adjustments and activity limitations of Operation Enduring Freedom/Operation Iraqi Freedom/Operation New Dawn (OEF/OIF/OND) veterans with amputations and their satisfaction with VA prosthetic services.

To review VA credentialing requirements, we reviewed relevant VA policies; surveyed all VHA Amputation System of Care (ASoC) Regional Amputation Centers (RACs), Polytrauma Amputation Network Sites (PANS), and Amputation Care Teams (ACTs) for credentialing of prosthetists and orthotists; and requested the certification of prosthetics laboratories.

We assessed the demand for VA healthcare services by analyzing the integrated data from VA and the Department of Defense (DoD) for almost 500,000 veterans who separated from the military from July 1, 2005, to September 30, 2006, for their experience transitioning to VA and using VA health care and compensation benefits through September 30, 2011. We characterized and compared disease burdens of veterans with traumatic major amputations with their non-traumatic counterparts in this veteran population.

We assessed the psychosocial adjustments and activity limitations of OEF/OIF/OND veterans with amputations and their satisfaction with VA prosthetic services. With the assistance of the U.S. DoD OIG, we acquired the DoD amputee list from TRICARE and Walter Reed National Military Medical Center staff. This list contained all 1,506 servicemembers (including those who did not serve in OEF/OIF/OND) with major amputations that occurred during active duty as of August 17, 2011; 1,288 of them were living (as of September 30, 2011). As of September 30, 2011, 838 (65 percent) of the 1,288 in the DoD OEF/OIF/OND amputee population were discharged from active military service (veterans) and 450 remained on active duty. We limited our scope to those 838 living veterans who served in OEF/OIF/OND with major amputations. We conducted in-person visits to a statistically representative sample of veterans with lower extremity amputations.

Results

All Required Prosthetist and Orthotist Staff in VA RACs and PANS and All Their Prosthetic Laboratories Were Certified. VHA established requirements for VA prosthetists and orthotists. We verified board certification of all of the 56 prosthetists and orthotists from the RACs and PANS in the ASoC who were required to be certified. These facilities reported that all their prosthetic laboratories were certified.

Veterans with Amputations are a Complex Population with a Variety of Medical Conditions and are Significant Users of VA Healthcare Services, Not Just Prosthetic Services. Our analyses of the integrated data from VA and the DoD for almost 500,000 veterans indicate veterans with traumatic amputations account for less than half of one percent of the study population. Most (99.1 percent) veterans with traumatic amputations transitioned to VA care within 5 years after separation from active duty. As of September 30, 2011, 93.2 percent of the amputees had used VA prosthetic care.

The amputees had more co-morbidities. Consistently, DoD or VA diagnosed a much higher proportion of amputees, in each broad medical condition category, than their non-amputee counterparts; even after accounting for the 27 percent of OEF/OIF and 41.5 percent non-OEF/OIF non-amputees, who had not used VA or DoD care after separation from active duty. After separation from active duty, over 80 percent of amputees had diagnoses in each of the following categories: mental disorders, diseases of the nervous system and sense organs, and diseases of the musculoskeletal system and connective tissue, in addition to the expected category of injury.

As of September 30, 2011, 92.2 percent of amputees were service-connected with the median disability rating of 100 percent, and with roughly 88 percent receiving a disability rating of 70 percent or higher. For OEF/OIF non-amputees, 32.6 percent of them were service-connected with the median disability rating of 40 percent and with nearly 7.5 percent receiving a disability rating of at least 70 percent.

Characteristics of OEF/OIF/OND Amputee Population. Based on the integrated data from both DoD and VA, this is the first ever study to characterize the population of 1,288 OEF/OIF/OND servicemembers with major traumatic amputations. We followed them for their experience transitioning to and using VA health care and benefits through September 30, 2011. We compared characteristics and disease burdens of OEF/OIF/OND servicemembers discharged from military service with those remaining on active duty with traumatic major limb amputations in this population.

The majority of the 1,288 OEF/OIF/OND servicemembers with a major traumatic amputation were under 30 years of age, enlisted, male, and served in the Army. There were 59 percent of servicemembers who had only one lower limb amputation, 16 percent had at least one upper limb (but no more than two limbs) amputations, and 2.6 percent had three or more limb amputations. Overall, OEF/OIF/OND

servicemembers who remained on active duty had fewer medical conditions than those discharged (veterans).

For the veterans in the population, we compared their disease burden after discharge with those before their discharge. Over 97 percent of the 838 OEF/OIF/OND veterans had used VA for care within the first 5 years after discharge. Almost all (98 percent) of the veterans had at least one diagnosed medical condition by DoD or VA after discharge. The most frequent diagnostic categories other than injury and poisoning were mental disorders (77 percent), diseases of the musculoskeletal system and connective tissue (75 percent), and diseases of the nervous system and sense organs (70 percent).

TBI was diagnosed in 35 percent of the veterans by DoD or VA after discharge. For veterans, PTSD diagnoses increased from 31 percent before discharge to 58 percent after discharge. Mood disorders increased from 27 percent before discharge to 35 percent after discharge. Adjustment disorders decreased from 33 percent before discharge to 22 percent after discharge. Substance-related disorders increased from 11 percent before discharge to 15 percent after discharge; alcohol-related disorders increased from 7 percent to 11 percent whereas drug-related disorders decreased about 0.5 percent to around 9 percent.

Functional Status and Psychosocial Adjustment of OEF/OIF/OND Veterans with Amputation and Their Satisfaction with VA Care. We conducted in-person visits for a statistically representative sample of 59 (out of 681) veterans with lower limb amputations and telephone interviews for 46 (out of 149) upper extremity only amputees who agreed to participate to assess their psychosocial adjustment, physical abilities, and prosthetic satisfaction. Consistently, veterans with upper limb amputations only, reported lower psychosocial adjustment, physical abilities, and prosthetic satisfaction than veterans with lower limb amputations.

Despite the challenge of major limb amputation, we estimated the majority (91.0 percent of lower limb and 80.0 percent of upper limb only) of veterans considered (agreed or strongly agreed) their “life is full.” About 55 percent of veterans with lower extremity amputation strongly agreed that they had “gotten used to wearing an artificial limb,” which is statistically significantly higher ($p < 0.05$) than the 22.7 percent of strongly agreed by the upper extremity only amputees. We estimated that 98 percent of veterans with lower limb amputations were satisfied with appearance of the artificial limb, statistically significantly higher than the 84.8 percent of upper limb only amputees. Veterans’ overall satisfaction with the artificial limb was 90.9 (95 percent confidence interval [CI]: 77.0–96.8) percent of those with lower limb amputations, higher than the 69.6 (95 percent CI: 57.1–79.7) percent given by those with upper limb amputations only.

The mean time of completing the Timed Up and Go test by OEF/OIF/OND veterans with lower limb amputation was 10.5 seconds, with a 95 percent CI of 8.5–12.4 seconds. A time of 13.5 seconds or greater indicates a higher risk of falls for adults living in the

community. We estimated 8.5 percent of the veteran population with lower limb amputations had a time of 13.5 seconds or more.

The QuickDASH (Disabilities of the Arm, Shoulder, and Hand) is a measure of upper extremity functional loss. QuickDASH scores range from 0 to 100 with 0 indicating no loss of function and 100 indicating severe loss of function. For normal healthy adults, the average QuickDASH score is 1.8 for disability/symptom subscale. For OEF/OIF/OND veterans with upper extremity amputations only, the mean QuickDASH score for the disability/symptom subscale was 36.6 (95 percent CI: 31.60, 41.57). This average score of OEF/OIF/OND veterans is similar to general populations with unilateral upper extremity amputations who scored 39. However, over half of these veterans reported experiencing moderate to severe pain.

In open-ended comments, veterans' concerns with VA prosthetic services centered on the VA prosthetic expertise, difficulty with accessing VA services, and the approval process for fee-basis or VA contract care.

Conclusions

Based on the integrated data from VA and DoD, we characterized the population of nearly 500,000 veterans discharged from active military duty between July 1, 2005, and September 30, 2006, and we described their experience transitioning to VA and using VA health care and compensation benefits through September 30, 2011. We observed that most (99.1 percent) veterans with traumatic amputations transitioned to VA care within 5 years after separation from active duty, and the amputees had more co-morbidities than their non-amputees counterpart did. Consistently, DoD or VA diagnosed a much higher proportion of amputees, in each broad medical condition category, than their non-amputee counterparts; even after accounting for the 27 percent of OEF/OIF and 41.5 percent non-OEF/OIF non-amputees, who had not used VA or DoD care after separation from active duty. We noticed veterans with amputations are significant users of all VA healthcare services, not just prosthetic services. They are a complex population with a variety of medical conditions, and VA should pay special attention to coordinating services that provide comprehensive interdisciplinary care for amputees to meet their multiple needs.

Based on the integrated data from both DoD and VA, this is the first ever study to characterize the population of 1,288 OEF/OIF/OND servicemembers with major traumatic amputations. We followed them for their experience transitioning to and using VA health care and benefits through September 30, 2011. We observed that servicemembers who were discharged had more diagnosed medical conditions than their counterparts who remained in active duty.

We found that OEF/OIF/OND veterans generally were adapting to living with their amputations. Veterans with lower extremity amputations have good mobility as assessed

by the Timed Up and Go test. Veterans with upper extremity amputations only are functioning similarly to their counterparts in the general population; however, over half of these veterans reported experiencing moderate to severe pain. We found that veterans with upper extremity amputations consistently did not fare as well as those veterans with lower extremity amputations in their psychosocial adaptation, activity limitation, and prosthetic satisfaction.

While some veterans reported receiving excellent care at VA facilities, many veterans indicated that VA needed to improve care. Concerns with VA prosthetic services were centered on the VA approval process for fee basis or VA contract care, prosthetic expertise, and difficulty with accessing VA services.

Recommendations

1. We recommended that the Under Secretary for Health consider the wide-ranging medical needs of traumatic amputees beyond the prosthetic and mental health concerns identified in this report; then adjust, if necessary, the provision and management of health care services accordingly.
2. We recommended that the Under Secretary for Health consider that VHA evaluate the needs of veterans with traumatic upper limb amputations to improve their satisfaction.
3. We recommended that the Under Secretary for Health consider veterans' concerns with VA approval processes for fee-basis and VA contract care for prosthetic services to meet the needs of veterans with amputations.

Comments

The Under Secretary for Health concurred with the findings and recommendations. See Appendix B (pages 70-75) for the full text of his comments.

We will follow up on the corrective actions until all recommendations have been fully implemented.



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Introduction

Purpose

The VA OIG OHI conducted a review, at the request of the Chairman of the House Committee on Veterans' Affairs, to evaluate the capabilities of the VA to deliver prosthetic care. The review objectives were to assess:

- VA credentialing requirements for prosthetists and orthotists
- The demand for prosthetic services
- Psychosocial adjustments and activity limitations of OEF/OIF/OND veterans with amputations and their satisfaction with VA prosthetic services

Background

VA Healthcare System. As of November 9, 2011, the VA Healthcare System was comprised of 152 medical centers, 807 community-based outpatient clinics, and 288 Vet Centers.¹ It provides a broad spectrum of medical, surgical, and rehabilitation care.

As of September 2011, there were over 5.6 million unique patients treated by VA.² Greater than 84 percent of these veterans were 45 years old or older, and over 72 percent were 55 years old or older. Female veterans represented almost 9 percent of the population.

Amputations. Amputations can be broadly defined as major or minor, based on where a limb is severed. A major amputation involves a leg at or above the ankle, or an arm at or above the wrist. A minor amputation involves either all or part of the hand or foot. Amputations can further be defined as traumatic or non-traumatic based on the cause of the amputation. For instance, loss of a leg due to an injury during a car accident would be traumatic. A foot amputation would be non-traumatic if it was due to poor circulation from disease, such as diabetes mellitus.

Prosthetics. A prosthetic limb is an artificial limb designed to replace the missing body part for an individual with an amputation. The best prosthetic limb for an individual depends on a number of factors in addition to the level of the amputation, such as the individual's baseline health, activity level, and preference. Medical conditions, such as residual limb pain, skin breakdown, and injuries to the non-amputated limbs may complicate prosthetic fitting. Different types of prosthetic limbs are available ranging

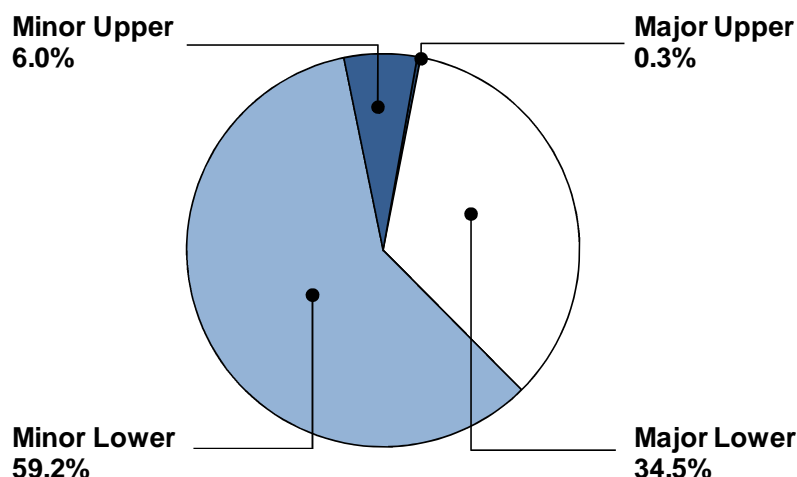
¹ http://www.va.gov/vetdata/docs/Quickfacts/Stats_at_a_glance_FINAL.pdf, accessed December 28, 2011.

² VHA Support Service Center (VSSC) website, <http://vssc.med.va.gov/>, accessed December 21, 2011.

from cosmetic ones, which are primarily for appearance, to sophisticated myoelectric³ arms that perform a wide array of functional activities.

VA Amputation Services. In FY 2011, 6,026 veterans underwent an amputation, with 2,248 having major amputations. Of the 6,026 veterans, 107 (1.8 percent) were female and 24 were veterans of OEF/OIF/OND. Exhibit 1 shows the distribution of amputations performed at all VA facilities in FY 2011.

Exhibit 1. Types of Amputations Performed by VA in FY 2011.



In response to the growing need to provide patient-centered amputation care to a younger population of combat-injured veterans, VA developed the ASoC. The VA ASoC was approved in 2008 and funded for implementation in 2009. Rollout of the system was not completed until October 2011.⁴ The ASoC is comprised of four components:

- RAC
- PANS
- ACT
- APOC

RAC. RACs are the banner facilities for amputation care in VA. These seven facilities offer the highest level of expertise in clinical care and the latest prosthetic concepts and design. They are equipped to provide care for the most complex cases and serve as a resource for other facilities in their region, including education and training, monitoring outcomes, and providing direct care either face-to-face or via telehealth technology. Teams are comprised of physicians, therapists, prosthetists, nurses, social workers, and

³ A myoelectric prosthesis uses electrical signals from muscles within a person's residual limb to control the movements of the prosthesis.

⁴ Sigford, BJ. *Paradigm Shift for VA Amputation Care*. Journal of Rehabilitation Research and Development, 2010 Vol 47(4), p. xv–xix.

mental health professionals. RACs have highly developed, accredited prosthetic laboratories and services, as well as specialized rehabilitation equipment. They are prepared to participate in research endeavors and evaluation of new technology.

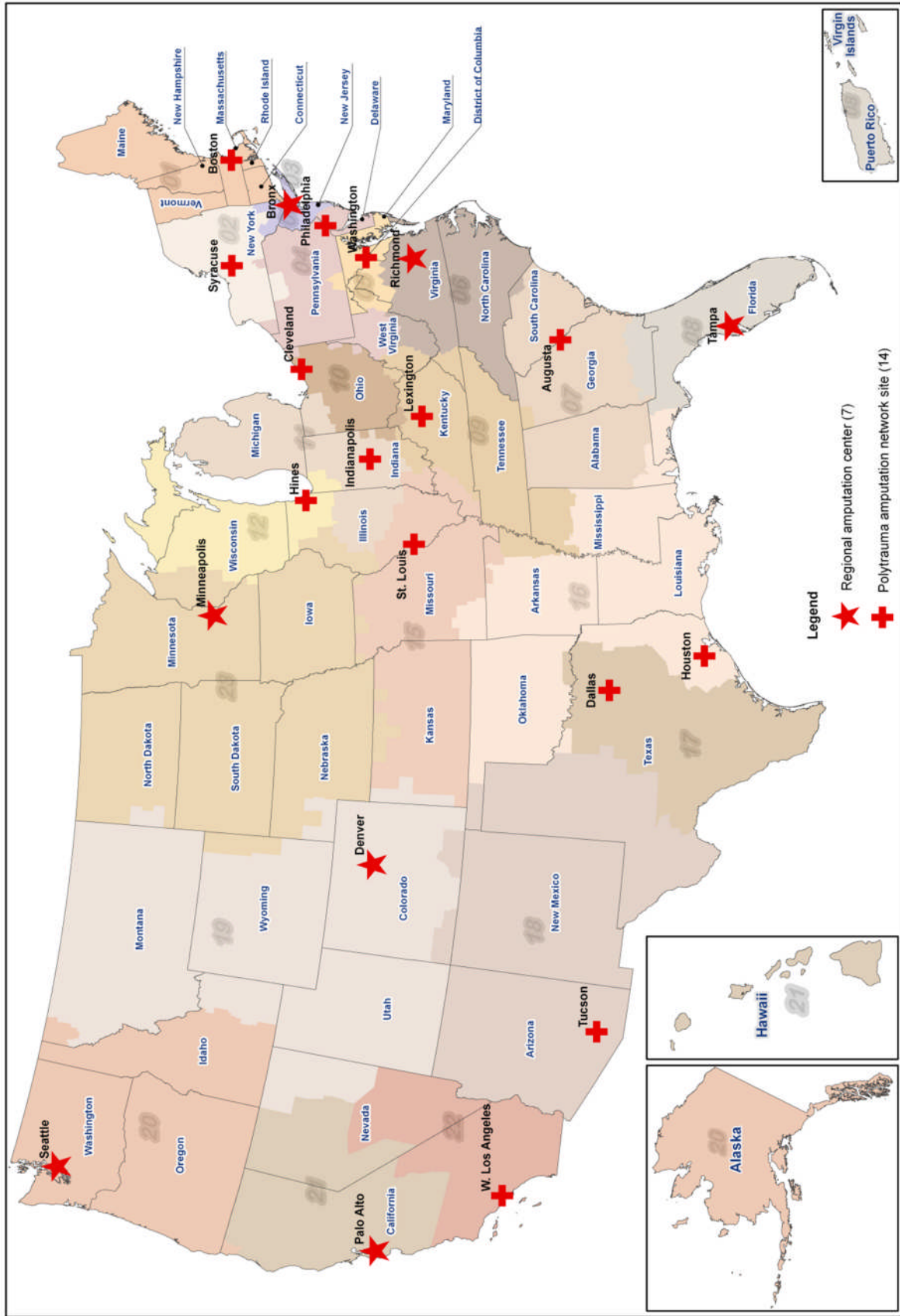
PANS. PANS provide the full range of clinical and ancillary services and are consultants for other facilities within their VISN. The 15 PANS are associated with the VISN Polytrauma Network Sites. They provide prosthetic services through an accredited prosthetic laboratory or via contracts with the private sector. They provide surgical support services and use telehealth technology to access veterans in more rural areas or who receive their primary services at smaller VA facilities. PANS are responsible for the lifelong needs of the veterans with amputations in their VISN.

ACT. ACTs are located at smaller VA facilities that may not have the full range of supportive services available but are located more conveniently to the veterans. They have a core interdisciplinary team (including physicians, therapists, prosthetists, and other professionals) but may not have an accredited inpatient rehabilitation program or accredited prosthetic laboratory. They may refer to a PANS, RAC, or community contract provider for services. They may also use telehealth technology to consult with other facilities to reduce veterans' burden of travel. There are over 100 ACTs across the VA Healthcare System. The number of ACTs is increasing as APOCs develop into clinics where needs have arisen.

APOC. An APOC is an individual, who is often a nurse or social worker case manager, knowledgeable about the ASoC and can refer veterans to the facilities that will best meet their individual needs. The APOCs are located at smaller VA facilities without the resources to provide amputation care services directly.

Exhibit 2 shows the locations of VA RACs and PANS.

Exhibit 2. VA RACs and PANS.



Telehealth. Telehealth helps improve veterans' access to care.⁵ Through Clinical Video Telehealth, specialty providers at parent facilities can provide care to veterans at remote clinics. Additionally, these specialists can assist allied health providers while they care for veterans at these remote clinics. Clinical Video Telehealth can save veterans the cost and inconvenience of traveling and allow allied health providers and specialists to treat veterans jointly during a single visit. For this reason, telehealth can serve as an important resource for all types of ASoC facilities. For example, facilities with only an APOC can use telehealth to communicate with specialists at ACT, PANS, or RAC facilities based on patient care needs.

VHA allows prosthetic laboratories to be established as a necessary part of patient treatment services in any VA medical center when analyzed as cost-effective.⁶ The size of a VA Prosthetic and Orthotics Laboratory will vary depending on the needs of the VA medical center. Existing VA Prosthetic and Orthotic Laboratories are expected to be used as a primary source and to the fullest extent possible.

As well, VHA allows eligible veterans to obtain authorized artificial limbs from any commercial artificial limb dealer who is under a current local contract with the VA or the veterans' preferred prosthetist who agrees to accept the preferred provider rate.⁷ Fee-basis care is a means to provide non-VA care to eligible veterans when they request to continue care through their preferred prosthetist.

In addition, VA has several specialty programs that are outside of the four-level treatment programs. These include the transitional amputation rehabilitation program and the VA center of excellence.

Servicemember Transitional Amputation Rehabilitation Program (Richmond, VA). This program assists servicemembers in returning to unrestricted military, federal, or civilian employment. It provides individualized physical and amputation-related rehabilitation services in a residential setting. This program highlights the benefits of coordination of care by integrating polytrauma, amputation services, and intensive vocational rehabilitation services. The program uses care coordinators as well as military liaisons and is designed to reduce the time for disability evaluations.

VA Center of Excellence for Limb Loss Prevention and Prosthetic Engineering (Seattle, WA).⁸ The center's aim is to improve prosthetic manufacturing by developing novel approaches to improve the current standard of care. The center's amputee-centric research encompasses improving patient mobility and comfort and preventing injury.

⁵ <http://www.telehealth.va.gov/real-time/index.asp>, accessed December 20, 2011.

⁶ VHA Handbook 1173.2, *Furnishing Prosthetic Appliances and Services*, November 3, 2000.

⁷ VHA Handbook 1173.3, *Amputee Clinic Teams and Artificial Limbs*, June 4, 2004.

⁸ VA Center of Excellence for Limb Loss Prevention and Prosthetic Engineering, <http://www.amputation.research.va.gov/index.asp>.

Support for this research includes funding from the Department of Veterans Affairs Rehabilitation Research and Development Service and the National Institutes of Health.

This research center offers investigators the opportunity to conduct basic and clinical research and disseminate their findings in an effort to impact the quality of life and functional status of veteran amputees and veterans who are at risk for having an amputation. The two general areas of research are Limb Loss Prevention and Prosthetic Engineering.

PSAS.⁹ VA provides veterans with equipment and limb manufacturing through PSAS. This service coordinates the needs of veterans through their clinical providers to meet their prosthetic needs. PSAS' mission is to provide comprehensive support to optimize health and independence of the veteran. PSAS seeks to be the premier source of prosthetic and orthotic services, sensory aids, medical equipment, and support services for veterans.

PSAS is the world's largest and most comprehensive provider of prosthetic devices and sensory aids. PSAS provides a full range of equipment and services to veterans. PSAS defines a prosthetic as a device that supports or replaces a body part or function. These range from artificial limbs to hearing aids; items that improve accessibility, like wheelchair ramps or vehicle modifications; and surgical devices, such as artificial hips and heart pacemakers. In FY 2010, PSAS served approximately 43,000 individuals with limb loss.

VA/DoD Collaboration. In 1992, VA and DoD signed a Memorandum of Understanding (MOU). The MOU identified how the VA prosthetic equipment and expertise would be used at military healthcare sites to support active duty servicemembers. The MOU encouraged the use of VA prosthetic services for active duty DoD amputees while in military treatment facilities. In 2007, the VA/DoD produced the *Clinical Practice Guideline for Rehabilitation of Lower Limb Amputation*.¹⁰

VA Disability Compensation. Disability compensation is part of the VBA's Compensation and Pension Program. It provides a tax-free monetary benefit paid to veterans who are disabled by injuries or diseases that were incurred or worsened during their military service. These disabilities are considered service-connected. This benefit compensates veterans for the average loss in earnings capacity in civilian occupations commensurate with the severity of the service-connected conditions. Generally, service-disabled veterans who were discharged from military service under other than dishonorable conditions are entitled to compensation benefits, regardless of their income or employment status.

⁹ Prosthetic and Sensory Aids Service, <http://www.prosthetics.va.gov/>.

¹⁰ VA/DoD *Clinical Practice Guideline for Rehabilitation of Lower Limb Amputation*, August 2007.

Disability compensation varies with the degree of disability and the number of a veteran's dependents (spouse, children, and dependent parents) and is paid monthly. As of December 1, 2011, the basic monthly compensation payments ranged from \$127 for a 10 percent-disabled veteran, to \$2,769 for a 100 percent-disabled veteran. For disability ratings of 30 percent or higher, VA pays additional benefits for veterans' dependents. For example, if a 60 percent-disabled veteran has a spouse and one child, the monthly payment increases by \$160, from \$1,009 to \$1,169. For very serious disabilities, such as the loss of limb(s), VA pays additional special monthly compensation.

Compensation payment rates are not proportional to the corresponding degrees of disability; higher disability ratings have disproportionately larger monetary benefits than lower ratings. For example, the basic monthly 100 percent disability compensation payment rate of \$2,769 is 21.8 times more than the 10 percent disability payment rate of \$127. In contrast, the 100 percent disability payment rate is 3.5 times more than the 50 percent disability payment rate of \$797.

Scope and Methodology

To review VA credentialing requirements, we reviewed relevant VA policies and surveyed all VA RACs, PANS, and ACTs for credentialing of prosthetists and orthotists, and their prosthetics laboratories.

We assessed the demand for VA healthcare services by analyzing the integrated data from VA and the DoD for almost 500,000 veterans who separated from the military from July 1, 2005, to September 30, 2006, for their experience transitioning to VA and using VA health care and compensation benefits through September 30, 2011. We characterized and compared disease burdens of veterans with traumatic major amputations with their non-amputee counterparts in this veteran population.

We assessed the psychosocial adjustments and activity limitations of OEF/OIF/OND veterans with amputations and their satisfaction with VA prosthetic services. With the assistance of the U.S. DoD OIG, we acquired the DoD amputee list from TRICARE and Walter Reed National Military Medical Center staff. This list contained all 1,506 servicemembers (including those who did not serve in OEF/OIF/OND) with major amputations that occurred during active duty as of August 17, 2011; 1,288 of them were living (as of September 30, 2011) OEF/OIF/OND amputees. As of September 30, 2011, 838 (65 percent) of the 1,288 in the DoD OEF/OIF/OND amputee population were discharged from active military service (veterans) and 450 remained on active duty. We limited our scope to those 838 living veterans who served in OEF/OIF/OND with major amputations. We conducted in-person visits to a statistically representative sample of veterans with lower extremity amputations. We attempted to contact all veterans with upper extremity amputations only for telephone interviews.

Survey of VA ASoC Facilities

In October 2011, the Deputy Under Secretary for Health for Operations Management deployed an OHI survey to facilities providing services under the VA ASoC. The survey focused on capturing workload, verifying certification of prosthetists and orthotists, and types of prosthetic services available. We received 124 facility responses to the survey.

Study Populations

LC Database Veteran Population. We included all veterans aged 17–64 in the LC Database for the review of amputees’ demand for services. The population-based LC Database identifies and captures information on all veterans who separated from active military duty during July 1, 2005–September 30, 2006, whether or not they enrolled in VA health care or applied for VA benefits after separation (VA users or non-VA users).

The LC Database was created and is maintained by the OIG. It is derived from more than 100 files acquired from VA and DoD and integrates details from both VA and DoD data on nearly 500,000 discharged servicemembers. The LC Database is the first and, to date, the only available population-based, comprehensive analytic database that integrates both VA and DoD data on these recently discharged veterans. This population-based approach eliminates potential bias in the selection of veterans. For example, veterans who are VA users may differ from non-VA users in fundamental ways that affect veterans’ decisions to transition to VA care and impact policy, planning, and resource decisions.

OIG report *Quantitative Assessment of Care Transition: The Population-Based LC Database*¹¹ describes the LC Database in detail, including an overview of its structure, the methodology used to create it, data confidentiality issues, and the opportunity it provides for VA to make decisions using an evidence-based approach. We used the LC Database as part of our work to respond to a congressionally requested evaluation of veterans’ access to mental health care and reported our results in *Access to VA Mental Health Care for Montana Veterans*¹² and to a congressionally requested evaluation of combat stress in women veterans’ and reported our results in *Review of Combat Stress in Women Veterans: Receiving VA Health Care and Disability Benefits*.¹³

We updated the database to include information through September 30, 2011, the most recent time period available for us to meet our reporting requirement. DoD medical

¹¹ VAOIG report number 07-00380-202, issued 9/13/2007, <http://www.va.gov/oig/54/reports/VAOIG-07-00380-202.pdf>.

¹² VAOIG report number 08-00069-102, issued 3/31/2009, <http://www.va.gov/oig/54/reports/VAOIG-08-00069-102.pdf>.

¹³ VAOIG report number 10-01640-45, issued 12/16/2010, <http://www.va.gov/oig/52/reports/2011/VAOIG-10-01640-45.pdf>.

treatment data was available only through March 31, 2009. The most current geo-coded¹⁴ VA patient file was through September 30, 2010. Updates to the LC Database are summarized below.

VA Disability Compensation. Because of compensation payment variations for given disability ratings and dual eligibility for both compensation and pension, we chose to work with disability ratings directly. We added to the LC Database up to nine impairment-specific disability ratings and the combined total disability rating as of the end of September 2011. Note that the combined disability rating is not a simple sum of each specific disability rating. For example, multiple zero ratings of specific disabilities could result in a 10 percent combined disability rating. These disability ratings were taken from both the extract of the Benefits Delivery Network (BDN) database (referred to as the C&P file) and from the extract of Corporate Data Warehouse's VetsNet database (referred to as the Corporate file), as VBA is transitioning from the BDN database to the Corporate one.

VA and DoD Treatment Information and Vital Status. Veterans' vital status information and all VA (including fee-basis care) medical treatment information were updated to the end of September 2011. Limited by the data availability, DoD treatment information was updated to the end of March 2009. The current LC Database covers DoD treatment information from FY 2002 through March 2009 and VA treatment information from FY 2004 through September 2011.

In addition to updating the original 11 diagnostic-specific indicators in the LC Database, we added new diagnostic-specific indicators. These indicators were created based on patients' specific ICD-9-CM diagnostic codes, using the same business rules detailed in the 2007 OIG report, *Quantitative Assessment of Care Transition: The Population-Based LC Database*.¹⁵ ICD-9-CM groups these disease diagnostic codes into 17 broad categories. We created an indicator for each of the 17 broad ICD-9-CM categories, except for Neoplasms (140–239) that used two indicators, one for Malignant Neoplasms (140–208) and another for Benign Neoplasms (210–239).

Mental Disorders were defined as any ICD-9-CM diagnosis from 290.0 to 319.0, which corresponds to the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Revised* (DSM-IV-R). Indicators were also created for each individual category of mental disorders based on the first three digits of the ICD-9-CM codes.

The category "Psychosocial or Behavioral Problems" was defined based on selected ICD-9-CM V-codes, a supplementary classification used to describe problems that are a

¹⁴ Geo-coding is a process of translating addresses to latitude and longitude based on geography.

¹⁵ VAOIG report number 07-00380-202, issued 9/13/07,
<http://www.va.gov/oig/54/reports/VAOIG-07-00380-202.pdf>.

focus for mental health treatment but are not considered mental health diagnoses.^{16,17} The specific V-codes included for defining this category are: V15.40–V15.49, V60.0–V60.2, V60.4, V61.0–V61.22, V61.80–V61.83, V61.90, V62.0, V62.2, V62.5, V62.80–V62.89, V63.0, V63.9, V65.2, V65.5, V69.2–V69.8, V70.1–V70.2, V71.0–V71.1, V71.5, V71.81, and V79.0–V79.1.

Additionally, we added the following specific categories of mental disorders using Hoge's definitions:¹⁸

- Adjustment disorders. ICD-9-CM: 309.0, 309.24, 309.28, 309.3, 309.4, 309.9.
- Anxiety disorders. ICD-9-CM: 300.00, 300.01, 300.02, 300.21, 300.22, 300.23, 300.29, 300.3, 308.3, 309.81.
- Anxiety disorders excluding PTSD. ICD-9-CM: 300.00, 300.01, 300.02, 300.21, 300.22, 300.23, 300.29, 300.3, 308.3.
- Post-traumatic stress disorder (PTSD). ICD-9-CM: 309.81.
- Major depression. ICD-9-CM: 296.2, 296.3.
- Mood disorders. ICD-9-CM: 296.0, 296.2–296.7, 296.80, 296.89, 296.90, 300.4, 301.13, 311.
- Personality disorders. ICD-9-CM: 301.0, 301.2, 301.4, 301.50, 301.6, 301.7, 301.81–301.84, 301.89, 301.9.
- Psychotic disorders. ICD-9-CM: 295.1–295.4, 295.6, 295.7, 295.9, 297.1, 297.3, 298.8, 298.9.
- Substance-related disorders. ICD-9-CM: 291, 292 (except 292.2), 303–305 (except 305.1 and 305.8).
- Alcohol-related disorders. ICD-9-CM: 291, 303, 305.0.
- Drug-related disorders. ICD-9-CM: 292 (except 292.2), 304, 305.2–305.7, 305.9.

The updated LC Database currently incorporates details about all 491,830 servicemembers discharged or released alive from active military duty during the period July 1, 2005–September 30, 2006. Because of delays in reporting deaths, the total number discharged alive (491,830) in the current database differs from that (494,147) in

¹⁶ Prophet S., *V codes: Supplementary Classification of Factors Influencing Health Status and Contact with Health Services*, Journal of AHIMA (American Health Information Management Association), 1996; 67:16–25.

¹⁷ Hoge CW, Lesikar SE, Guevara R, et al., *Mental Disorders Among U.S. Military Personnel in the 1990s: Association with High Levels of Health Care Utilization and Early Military Attrition*, American Journal of Psychiatry, 2002; 159:1576–1583.

¹⁸ Hoge CW, Lesikar SE, Guevara R, Lange J, Brundage JF, Engel CC, Messer SC, Orman DT: *Mental Disorders Among US Military Personnel in the 1990s: Association with High Levels of Health Care Utilization and Early Military Attrition*, American Journal of Psychiatry 2002; 159:1576–1583.

the 2007 report, *Quantitative Assessment of Care Transition: The Population-Based LC Database*.¹⁹

DoD OEF/OIF/OND Amputee Population. We included all (1,288) amputees who had served in OEF/OIF/OND from the DoD amputee file (Exhibit 3) to characterize and describe their disease burdens. Then, we limited our study population to veterans only (838) to ascertain their psychosocial adjustment, functional status, adaptation to prosthetic use, and their perceptions of VA care.

Exhibit 3. Inclusions and Exclusions of DoD OEF/OIF/OND Amputee Population.

	Number
DoD Amputee Population	1,506
Exclusions (Total)	218
Not affiliated with OEF/OIF/OND ¹	180
Deceased	38
OEF/OIF/OND Amputee Population (Total)	1,288
Discharged	838
Active duty	450

¹ Eight amputees counted here are dead also

We built our OEF/OIF/OND database for those 1,288 DoD OEF/OIF/OND amputees by incorporating details on them using more than 100 DoD and VA files, in a similar approach to how we constructed the LC Database. We completed the database construction on October 14, 2011. The information in the database is current as of September 30, 2011.

Sample Design for In-Person Visits to OEF/OIF/OND Veterans with Lower Limb Amputations

We used the Timed Up and Go test to assess mobility of veterans with lower limb amputations, which required an in-person visit to conduct the test. We worked on sample design to prepare for visits immediately after we acquired the DoD amputee list (in late August) to meet our reporting requirement. Because the OEF/OIF/OND database was not finished until the middle of October, we did not have information on veteran status. As we were unable to identify veterans from servicemembers at that time, we had to work our sample design based on the entire list of OEF/OIF/OND servicemembers with amputations, rather than directly on veterans only. We employed a stratified sample design based on whether or not the servicemember was a VA user in FY 2010 or FY 2011. We used VA user status as a surrogate for veteran status, as we thought that VA users were more likely to be veterans, and we were able to get VA treatment files for this information timely.

¹⁹ VAOIG report number 07-00380-202, issued September 13, 2007, <http://www.va.gov/oig/54/reports/VAOIG-07-00380-202.pdf>.

To conduct in-person visits, we first had to be able to physically locate each participant's address. We examined each of the 1,288 servicemembers on the DoD OEF/OIF/OND list for the appearance of a good locating address (house number, street name, city, and state). We excluded those that had missing address information or a post office box, military facility, or institutional address.

Of the remaining 814 with the appearance of a good locating address, we identified 668 with one upper and one lower limb, one lower limb, or two lower limbs amputated. For the first phase of sampling on September 2, 2011, we selected 81 from 668 using a stratified design where the strata were defined by whether or not the servicemember was a VA user in FY 2010 or FY 2011. In addition to the 81 sampled, we included all 19 servicemembers who had either three or four limbs amputated, resulting in a total of 100 selected servicemembers.

Two of the 19 with either three or four limb amputations agreed to participate; 11 were later classified as active duty status by the absence of a DoD discharge form. Thirty-four of the 81 sampled were later classified as active duty status and, therefore, ineligible to participate. Fourteen of the remaining 47 sampled with at least one lower limb amputation agreed to participate.

For Phase two of our sampling on September 30, 2011, we sampled an additional 200 from the remaining 587 lower extremity amputees. To increase our sample yield, we used a three strata-sampling design:

- 100 were selected from the stratum of veterans with lower extremity amputation identified in the LC Database.
- 50 were selected from servicemembers who were not in the LC Database and used VA.
- 50 were selected from servicemembers who were not in the LC Database and did not use VA in FY 2010 or FY 2011.

In-Person Visits to OEF/OIF/OND Amputees with Lower Limb Amputations

A representative sample was selected from the DoD OEF/OIF/OND list that appeared to have a good locating address. Attempts were then made to verify contact information through multiple sources (such as VA medical records, Google®, United States Postal Services zip code files, social networking websites, and the White Pages). After address verification, we called each selected veteran at least three times on three different days and times to verify veteran status and invite them to participate in our review. All veterans had the opportunity to decline participation. Those veterans who agreed to participate were asked their preference of time and location for the visit. Inspectors contacted veterans to set up visits and called to confirm prior to the visit.

Twenty-nine inspectors received specialized training to perform in-person visits. The assessment instruments were reviewed with the interviewers. Two interviewers visited each veteran. Interviews were generally conducted at the veteran's home, but a few veterans were seen at other locations of their choosing. In addition to applying specific measurement instruments, interviewers asked veterans to assess their care from the VA.

We conducted the in-person visits starting October 4, 2011, and ending October 26, 2011.

Assessment Instruments. We consulted with VA rehabilitation experts and peer-reviewed literature to select the measurement instruments employed in each veteran interview. One goal was to permit benchmark comparisons of veterans with their general public counterparts who had also had amputations. These instruments are described below.

- **Modified TAPES.** The TAPES is a multidimensional assessment of prosthetic users' perception of artificial limb use. It specifically looks at three domains: psychosocial adjustment, activity restriction, and prosthetic satisfaction. A subset of the TAPES questionnaire was selected while surveying all three domains. The TAPES scale has been shown to be reliable and valid for patients with upper and lower limb amputations.²⁰
- **QuickDASH.** The DASH outcome measure is a 30 item self-reported questionnaire designed to assess any and all joints of the upper extremity. It measures physical function and symptoms in people with several musculoskeletal disorders of the upper limb.

The QuickDASH is a shorter, 11-item version of the DASH. The QuickDASH includes additional scales to assess a patient's function with work activities as well as sports or playing an instrument. QuickDASH scores correlate well with DASH scores for a range of function-limiting conditions of the neck and upper extremity.²¹

- **Timed Up and Go Test.** The Timed Up and Go test assesses patient mobility.²² It requires minimal training. It requires that a veteran is able to independently and safely get up from a chair, walk, turn, and sit down. The test score is the time measured in seconds that it takes a patient to perform the test. According to VA staff we interviewed, it is commonly used to assess the function of amputees at VA facilities.

²⁰ Gallagher P, Maclachlan M. *The Trinity Amputation and Prosthesis Experience Scales and quality of life in people with lower-limb amputation.* Arch Phys Med Rehabil. 2004 May;85(5):730–6.

²¹ Nielke MC, Lindenhovius AL, Watson JB, et al. *Correlation of DASH and QuickDASH With Measures of Psychological Distress.* J Hand Surg Am. 2009 Oct; 34(8), p. 1499–505.

²² Schoppen T, Boonstra A, Groothoff JW, de Vries J, Göeken LN, Eisma WH. *The Timed "up and go" test: reliability and validity in persons with unilateral lower limb amputation.* Arch Phys Med Rehabil. 1999 Jul;80(7):825–8.

We measured each chair used by participants from the floor to the top of the cushion. Each participant stood up from the chair, walked 10 feet toward a cone, walked around the cone, and then returned to a sitting position in the chair. Each participant performed the test three times consecutively. Two inspectors simultaneously timed each test independently.

Telephone Interviews of OEF/OIF/OND Amputees with Upper Limb Amputations Only

Telephone interviews were conducted in early November 2011 after completion of the OEF/OIF/OND amputee database. Thus, we were able to identify veterans from servicemembers. We attempted to contact all veterans with upper limb only and 3- or 4-limb amputations identified from the OEF/OIF/OND database. All veterans had the opportunity to decline participation. We assessed upper extremity function by telephone using the same QuickDASH and modified TAPES assessment instruments. In addition to applying specific measurement instruments, interviewers asked veterans to assess their care from the VA.

We conducted the telephone interviews starting November 4, 2011, and ending November 15, 2011.

Statistical Analyses

LC Database Population. Our analyses included veterans in the LC Database who were discharged alive from active military duty beginning from July 1, 2005, through September 30, 2006. We excluded veterans whose age at separation was under 17 or over 64. Age at separation was calculated using the date at separation and the date of birth. When date of birth was in conflict among the files, we used the date of birth from two or more sources that agreed; otherwise, we reset the birth date to the first one of the three files with a valid date in the order of the military discharge, VA treatment, and DoD treatment files.

We considered a servicemember as having served in a Reserve/National Guard unit if Reserve/National Guard status was indicated in any of the Reserve Affairs roster, OEF/OIF, or VA/DoD Identity Repository (VADIR) reserve files before their separation date. Similarly, we defined a servicemember as having served in OEF/OIF, if OEF/OIF status was indicated in the OEF/OIF file before their separation date.

For service branch, the “Other” category of service combined all branches other than Army, Navy, Air Force, and Marine Corps, including missing branch information.

We re-categorized service character as follows:

- **Honorable/General** incorporates “Honorable” and “General, Under Honorable Conditions.” This category also includes those judged “Honorable for VA Purposes” by VBA.
- **Other Than Honorable.**
- **Bad Conduct/Dishonorable** includes “Bad Conduct” and “Dishonorable” discharges. It also includes those judged “Dishonorable for VA Purposes” by VBA.
- **Uncharacterized** consists of those without character of service listed.

“Bad Conduct/Dishonorable” discharges issued by general courts-martial may bar veterans from receiving VA benefits. Therefore, veterans who separated administratively under “Other Than Honorable” conditions may request that their discharge be reviewed for possible re-characterization, for the purpose of obtaining VA benefits. We excluded veterans with service character of “Bad Conduct/Dishonorable” from the study population because they were generally not eligible for VA benefits.

We grouped Pay Grade into five categories: E1–E4, E5–E9, O1–O3, O4–O10, and “Other.” The “Other” group included W1–W4, codes other than specified above, and missing Pay Grade information.

Our indicator of mental health diagnoses is combined Mental Disorder (ICD-9-CM) and Psychosocial or Behavioral Problems (ICD-9-CM V-codes).

Awards for mental disability conditions contained all awards with VBA’s disability condition codes 9100–9599, including PTSD disability condition code 9411, as a specific mental disability. In addition, a TBI disability award was defined by VBA’s disability condition code 8045.

We considered a veteran received amputee services if we found any of the codes in Appendix A in the computerized patient medical records.

OEF/OIF/OND Amputee Database Population. For this population, we only used the demographic and the injury data provided from the DoD amputee file in our analyses. All other information came from sources other than the amputee file. For one veteran (Study ID: D10001094) we visited in-person who had an upper limb and a lower limb amputated, the DoD file indicated only one lower limb amputation. We re-classified the veteran as having two limbs amputated.

We excluded servicemembers from the population if the DoD amputee, VA, or the Social Security Administration death files indicated they were deceased as of September 30, 2011.

The DD214 is the standard DoD separation document that is accepted by the Military, Social Security Administration, and VA to prove military service. We classified servicemembers with amputations as a veteran if we found a match of their social security number on a DD214 document with discharge dates between October 1, 2001, and September 30, 2011. The Veterans Assistance Discharge System (VADS) and Beneficiary Identification Record Locator Subsystem (BIRLS) are the sources of DD214 information for the amputees. We used records with discharge dates from October 1, 2001, through September 30, 2011, for an amputee. If a veteran had more than one DD214 with discharge date from FY 2002 to FY 2011, we retained the most recent one in our data analyses for this review purpose.

We established all other variables in the OEF/OIF/OND amputee database in a similar approach as we did in the LC Database.

For the Timed Up and Go test, we used the average score for each participant from the three tests performed as measured by the two inspectors independently (six scores) in our analysis.

Based on the sampled veterans we visited in-person, we estimated the degree of psychosocial adjustment, activity restriction, and prosthetic satisfaction for all OEF/OIF/OND veterans who suffered lower limb amputations. Horvitz-Thompson sampling weights, which are the reciprocal of sampling probabilities, were used to account for our unequal probability sampling. We computed post stratification sampling weights for the 59 participants of the in-person visits. We took into account our sample design to obtain the sampling errors for the estimates.

We also presented a 95 percent CI for the true value (parameter) of the OEF/OIF/OND veteran study population. A CI gives an estimated range of values (calculated from a given set of sample data) for an unknown population parameter. The 95 percent CI indicates that among all possible samples we could have selected of the same size and design, 95 percent of the time the population parameter would have been included in the computed intervals.

We performed data analyses using SAS statistical software (SAS Institute, Inc., Cary, North Carolina), version 9.3 (TS1M0). Maps were produced using ArcGIS software (Environmental Systems Research Institute, Redlands, CA), version 10.0.

This inspection was performed in accordance with *Quality Standards for Inspection and Evaluation* published by the Council of Inspectors General on Integrity and Efficiency.

Results and Conclusions

Issue 1: All Required Prosthetist and Orthotist Staff in VA RACs and PANS and All Their Prosthetic Laboratories Were Certified

1. Credentialing of VA Prosthetist and Orthotist Staff

VHA has established requirements for VA prosthetists and orthotists, and the position requirements vary by General Schedule (GS) grade level.²³ Certification is required at the GS-12 grade level or above. We verified board certification of all 56 prosthetists and orthotists from the RACs and PANS in the ASoC at the GS-12 grade level and above by reviewing American Board for Certification in Orthotics, Prosthetics and Pedorthics, Inc. (ABC) records, The Board of Certification/Accreditation, International (BOC) records, and/or copies of certificates provided by staff.

2. Prosthetic Laboratories Certification and Services Provided

All RACs and PANS reported that their prosthetic laboratories are certified. All RACs reported that they make and repair prosthetic limbs, and 13 of the 15 PANS reported that they make and repair limbs. All RACs and PANS are able to provide different types of limbs for general (upper, lower, hand, foot, etc.) and recreational use (such as for running, swimming, or skiing). These limbs are made in-house by VA laboratories or purchased from vendors using VA funds.

Six of the seven RACs reported using telehealth to extend services to an average of three additional sites. Five of the PANS reported using telehealth to extend services to an average of two additional sites.

3. Prosthetic Laboratories Workload

RACs reported making 446 prosthetic limbs in FY 2011. PANS reported making 823 prosthetic limbs in FY 2011.

When we surveyed facilities on their use of fee-basis care, six of the seven RACs reported that they used 377 fee-basis consults in FY 2011 for veterans who requested outside vendors and all PANS reported utilizing 1,182 fee-basis consults for prosthetic services in FY 2011.

Conclusions

All required prosthetists and orthotists staff in RACs and PANS were certified according to VA policy. These facilities reported that all the prosthetic laboratories were certified.

²³ VA Handbook 5005/15, Part II, Appendix G32, *Orthotist/Prosthetist Qualification Standard*, March 17, 2006.

Telehealth was used by 6 of the 7 RACs and 5 of the 15 PANS to provide remote care for veterans with amputations.

Issue 2: Veterans with Amputations are a Complex Population with a Variety of Medical Conditions and are Significant Users of VA Healthcare Services, Not Just Prosthetic Services

Summary of Findings

Based on the integrated data from both DoD and VA, we characterized the population of nearly 500,000 veterans discharged from active duty during July 1, 2005, to September 30, 2006. We followed them for their experience transitioning to and using VA health care and benefits through September 30, 2011. Every veteran in the population had at least 5 years of follow-up opportunity. In this first ever study, we compared characteristics, and disease burdens of veterans with traumatic major limb amputations with those non-amputee counterparts in this veteran population.

Veterans with amputations are significant users of all VA healthcare services, not just prosthetic services. They are a complex population with a variety of medical conditions; thus, they require more services and products. VA should pay special attention to coordinating services that provide comprehensive interdisciplinary care for amputees to meet their multiple needs.

Details of Findings

1. Baseline Characteristics of the Study Population

Of the 491,830 veterans in the LC Database, we excluded from our analyses a total of 673 veterans, which accounted for less than 0.2 percent of the entire population. The excluded veterans comprised:

- 565 veterans whose service characteristics were “bad conduct,” “dishonorable,” or “dishonorable for VA purpose.”
- 11 veterans who were age 16 or under at their time of separation from active military duty.
- 84 veterans who were age 65 or over at separation.
- 13 veterans whose dates of birth were unknown.

Based on the DoD amputee list, we identified 221 of the 1,506 DoD amputees in the LC Database population after excluding 5 amputees who died before being discharged from military active service. Thus, among the 491,157 in our study population, 490,936 were classified as non-amputees.

Of the 221 amputees, only 17 were non-OEF/OIF. Thus, we combined the non-OEF/OIF with OEF/OIF amputees in the analyses.

Exhibit 4 shows the demographic characteristics of the veteran population by amputation status and for those non-amputees also by OEF/OIF status. Because most amputees served in OEF/OIF, we consider their characteristics more comparable with OEF/OIF non-amputees. Amputees tended to be younger than non-amputees, with 88.7 percent of amputees being 34 years old or younger in comparison to 72.1 percent of non-amputees at separation from active service. A higher percentage (69.2) of amputees served in the Army than non-amputees (58.5 percent for OEF/OIF and 49.1 percent for non-OEF/OIF). A higher amputee percentage (49.3) was in the E1–E4 rank at the time of separation than their non-amputee counterparts of OEF/OIF (42.0 percent).

Exhibit 4. Baseline¹ Characteristics of the Study Population, by Amputation Status.

	All 491,157 (100%)	Amputee 221 (0.04%)	Non-Amputee		
			All 490,936 (99.96%)	OEF/OIF 243,667 (49.63%)	Not OEF/OIF 247,269 (50.37%)
Age at separation (years)					
mean	29.4	26.6	29.4	30.4	28.3
median	26	25	26	27	24
percentages in age groups:					
17–24	43.0	48.0	43.0	35.8	50.2
25–34	29.1	40.7	29.1	34.0	24.2
35–44	19.2	9.5	19.2	21.3	17.1
45–54	7.4	1.4	7.4	7.7	7.2
55–64	1.3	0.5	1.3	1.2	1.3
Branch (%)					
Army	53.8	69.2	53.8	58.5	49.1
Navy	16.2	3.6	16.2	14.4	17.9
Air Force	15.9	3.6	15.9	13.5	18.2
Marines	12.5	23.5	12.5	13.4	11.5
other	1.7	0.0	1.7	0.1	3.2
Character of service (%)					
Honorable/General	87.4	91.9	87.4	91.6	83.2
Other than honorable	3.1	0.0	3.1	1.9	4.2
Uncharacterized/Missing	9.5	8.1	9.5	6.5	12.5
Military pay grade (%)					
E1–E4	50.7	49.3	50.7	42.0	59.3
E5–E9	37.8	42.5	37.8	46.8	28.9
O1–O3	5.2	5.9	5.2	5.1	5.2
O4–O10	5.3	1.4	5.3	4.9	5.7
other	1.0	0.9	1.0	1.2	0.9

¹At separation (July 1, 2005–September 30, 2006) from active military service

2. Status of the Veteran Cohorts as of September 30, 2011

Exhibit 5 gives the current status of the veteran population as of September 30, 2011. Over 99 percent of the amputees had used VA care in contrast to 57.3 percent of OEF/OIF non-amputees and 34.0 percent of non-OEF/OIF non-amputees. Most (93.2 percent) of the amputees had used VA prosthetic care.

Exhibit 5. Current Status (as of September 30, 2011) of the Study Population.

	All 491,157	Amputee 221	Non-Amputee		
			All 490,936	OEF/OIF 243,667	Not OEF/OIF 247,269
Health care utilization for any disease after separation from active military service (%)					
At VA	45.6	99.1	45.6	57.3	34.0
At DoD only	20.1	0.9	20.1	15.6	24.5
Did not use health care at DoD or VA	34.3	0.0	34.3	27.1	41.5
Amputee services after discharge (%)					
At VA	11.7	93.2	11.7	16.1	7.4
At DoD only	0.0	2.3	0.0	0.0	0.0
Did not receive amputee services at DoD or VA	88.3	4.5	88.3	83.9	92.6
Diagnosed with mental disorders ¹ or V-codes indicating a psychosocial or behavioral problem ² after separation (%)					
At VA	26.0	84.6	26.0	35.8	16.2
At DoD only	6.4	5.9	6.4	4.2	8.5
Diagnosed with PTSD ³ after separation (%)					
At VA	11.7	61.5	11.7	19.3	4.2
At DoD only	0.3	2.7	0.3	0.4	0.2
Diagnosed with TBI ⁴ after separation (%)					
At VA	3.1	35.7	3.1	5.1	1.1
At DoD only	0.4	5.4	0.4	0.4	0.5

¹ ICD-9-CM: 290–319

² ICD-9-CM: V15.40–V15.49, V60.0–V60.2, V60.4, V61.0–V61.22, V61.80–V61.83, V61.90, V62.0, V62.2, V62.5, V62.80–V62.89, V63.0, V63.9, V65.2, V65.5, V69.2–V69.8, V70.1–V70.2, V71.0–V71.1, V71.5, V71.81, and V79.0–V79.1

³ ICD-9-CM: 309.81

⁴ ICD-9-CM: 310.2, 800–804, 850–854, and 950

Over 90 percent (84.6 percent at VA and an additional 5.9 percent at DoD) of amputees had been diagnosed with mental disorders or V-codes indicating a psychosocial or behavioral problem after discharge from military separation. This was much higher than the 40 percent of OEF/OIF non-amputees, even after factoring in the 27 percent of OEF/OIF non-amputees that did not use VA or DoD care after separation. Similarly, much higher percentages of amputees were diagnosed with PTSD (64.2 percent) and with TBI (41.1 percent), in contrast to 19.7 percent with PTSD and 5.5 percent with TBI of the OEF/OIF non-amputees.

As of September 30, 2011, 92.2 percent of amputees were service-connected with the median disability rating of 100 percent (Exhibit 6), and with roughly 88 percent receiving a disability rating of 70 percent or higher (Exhibit 7). For OEF/OIF non-amputees, 32.6 percent were service-connected with the median disability rating of 40 percent (Exhibit 6) and with nearly 7.5 percent receiving a disability rating of at least 70 percent (Exhibit 7).

Exhibit 6. Veterans Receiving VA Compensation as of September 30, 2011, by Amputation Status.

	All 488,247 (100%)	Amputee 219 (0.04%)	Non-Amputee		
			All 488,028 (99.96%)	OEF/OIF 242,281 (49.64%)	Not OEF/OIF 245,747 (50.36%)
Service-connected disability (%)	28.3	92.2	28.3	32.6	24.0
Overall percentage rating, mean	43.2	91.8	43.1	43.5	42.6
Overall percentage rating, median	40	100	40	40	40
Service-connected mental disability (%)	9.7	60.7	9.7	14.1	5.3
Overall percentage rating, mean	60.1	92.6	60.0	59.7	60.7
Overall percentage rating, median	60	100	60	60	60
Service-connected PTSD (%)	5.9	47.5	5.9	10.5	1.4
Overall percentage rating, mean	62.0	93.8	61.9	61.5	65.2
Overall percentage rating, median	60	100	60	60	70
Service-connected TBI (%)	0.8	13.2	0.8	1.3	0.3
Overall percentage rating, mean	67.5	92.4	67.4	68.8	61.5
Overall percentage rating, median	70	100	70	70	60

Exhibit 7. Veterans Receiving VA Compensation as of September 30, 2011, at each Disability Rating Level and Overall, by Amputation Status.

	All 488,247	Amputee 219	Non-Amputee		
			All 488,028	OEF/OIF 242,281	Not OEF/OIF 245,747
Disability Ratings (%)					
100	1.17	55.71	1.14	1.45	0.84
90	1.01	15.53	1.00	1.12	0.89
80	1.91	9.59	1.91	2.24	1.59
70	2.33	7.31	2.33	2.74	1.93
60	3.06	1.83	3.06	3.54	2.59
50	2.53	1.83	2.53	2.90	2.16
40	3.70	0.46	3.70	4.37	3.05
30	3.90	0.00	3.90	4.38	3.43
20	3.64	0.00	3.64	3.98	3.31
10	5.03	0.00	5.04	5.87	4.21
0	0.03	0.00	0.03	0.02	0.03
Total with Service-Connected Disability (%)	28.32	92.24	28.29	32.61	24.03
Pension only	0.04	0.00	0.04	0.05	0.04

3. Transition to VA Health Care after Separation from Active Duty

Exhibit 8 depicts the transition patterns of veterans to VA health care within the first 5 years after their separation from active military service by amputation status. Amputees were more likely to transition to VA care compared to OEF/OIF non-amputees, even though both groups were entitled to VA care because of their OEF/OIF status.

Exhibit 8. Percentages of Veterans Who Transitioned to VA Health Care within the First 5 Years after Discharge, by Amputation Status.

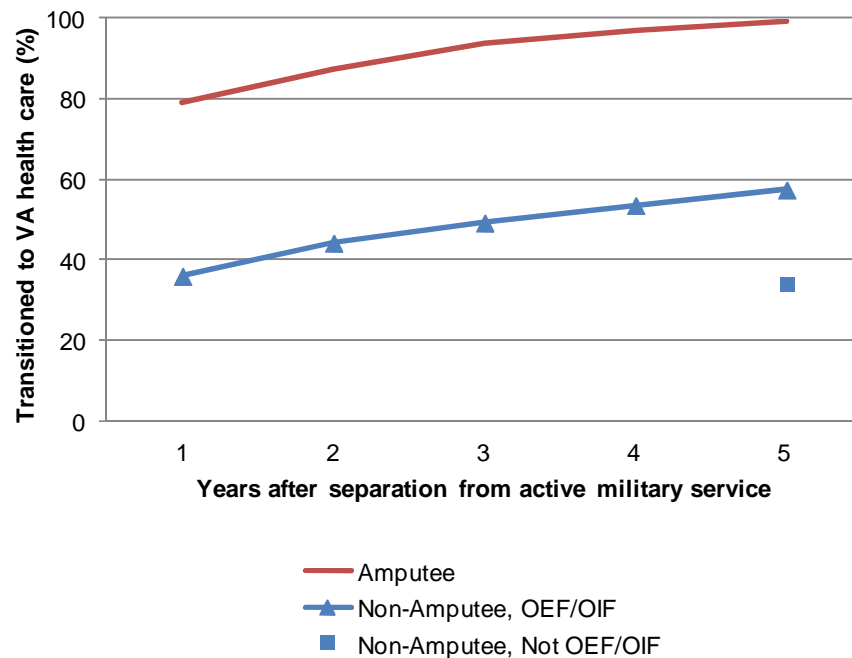
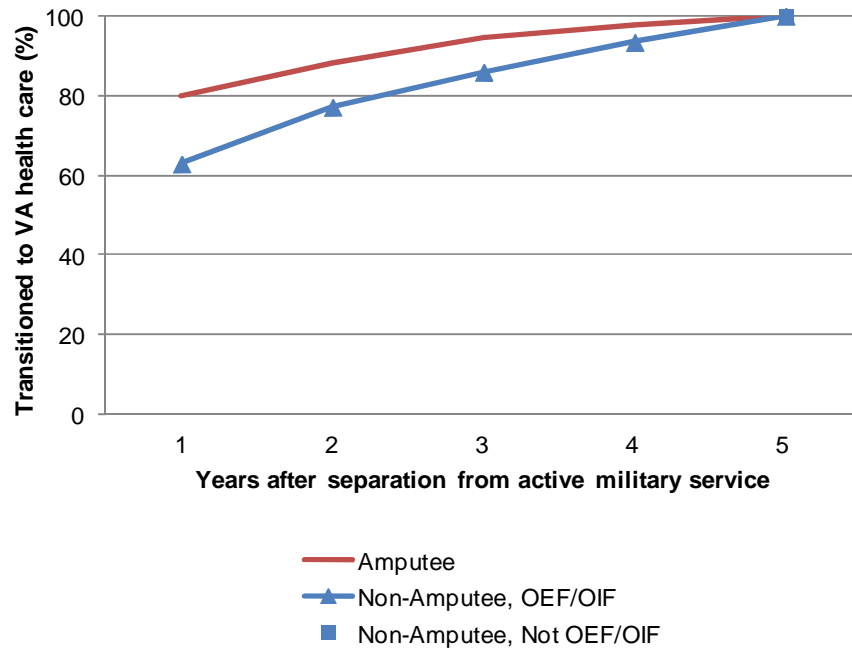


Exhibit 9 shows that among those who transitioned to VA care, veterans with amputations were much faster to transition to VA care than non-amputees.

Exhibit 9. Transition Percentages of Veterans to VA Health Care, among Veterans who Used VA Health Care, by Amputation Status.



4. Burden of Diseases among Veteran Cohorts

Exhibit 10 lists medical conditions (by broad ICD-9-CM diagnostic categories) diagnosed at DoD or VA by amputation status as of September 30, 2011. Consistently, DoD or VA diagnosed a much higher proportion of amputees, in each broad medical condition category, than their non-amputee counterparts; even after accounting for the 27 percent of OEF/OIF and 41.5 percent non-OEF/OIF non-amputees, who had not used VA or DoD care after separation. After separation from active duty, over 80 percent of amputees had diagnoses in each of the following categories: mental disorders, diseases of the nervous system and sense organs, and diseases of the musculoskeletal system and connective tissue, in addition to the expected category of injury and poisoning.

Exhibit 10. Medical Conditions¹ Diagnosed at DoD² or VA,³ by Amputation Status.

Veterans diagnosed (percent) Diagnostic category (ICD-9-CM codes)	All 491,157	Amputee 221	Non-Amputee		
			All 490,936	OEF/OIF 243,667	Not OEF/OIF 247,269
Infectious and parasitic diseases (001–139)	30.4	67.9	30.3	28.3	32.3
DoD diagnosed	25.3	60.6	25.3	21.0	29.5
VA diagnosed	8.0	18.6	8.0	10.7	5.4
Before separating from military service	22.0	52.9	22.0	18.4	25.6
DoD diagnosed	21.7	52.9	21.7	17.9	25.4
VA diagnosed	0.5	0.9	0.5	0.7	0.4
After separating from military service	12.6	28.5	12.6	14.2	11.1
DoD diagnosed	5.4	13.1	5.4	4.3	6.4
VA diagnosed	7.8	18.1	7.8	10.4	5.2
Malignant neoplasms (140–208)	1.6	5.9	1.6	1.6	1.7
DoD diagnosed	1.0	4.1	1.0	0.8	1.2
VA diagnosed	0.8	2.3	0.8	1.0	0.7
Before separating from military service	0.8	3.2	0.8	0.6	1.0
DoD diagnosed	0.8	3.2	0.8	0.6	0.9
VA diagnosed	0.0	0.0	0.0	0.0	0.1
After separating from military service	1.1	3.6	1.1	1.2	1.1
DoD diagnosed	0.4	1.4	0.4	0.3	0.5
VA diagnosed	0.8	2.3	0.8	1.0	0.6
Benign neoplasms (210–239)	10.3	18.1	10.3	10.4	10.3
DoD diagnosed	7.3	11.8	7.3	6.2	8.3
VA diagnosed	3.7	7.7	3.7	4.8	2.6
Before separating from military service	5.7	7.7	5.7	4.9	6.5
DoD diagnosed	5.6	7.7	5.6	4.8	6.4
VA diagnosed	0.2	0.0	0.2	0.2	0.1
After separating from military service	5.7	11.8	5.7	6.4	5.0
DoD diagnosed	2.2	4.5	2.2	1.8	2.7
VA diagnosed	3.6	7.7	3.6	4.7	2.5
Endocrine, nutritional and metabolic disease, and immunity disorders (240–279)	28.8	60.2	28.8	31.2	26.5
DoD diagnosed	17.7	36.7	17.7	15.2	20.2
VA diagnosed	16.1	46.2	16.1	21.3	10.9
Before separating from military service	14.8	28.1	14.8	12.4	17.0
DoD diagnosed	14.3	26.2	14.3	11.8	16.7
VA diagnosed	0.7	1.8	0.7	0.8	0.6
After separating from military service	20.3	50.2	20.3	24.7	16.0
DoD diagnosed	6.0	13.1	6.0	5.2	6.7
VA diagnosed	15.9	45.7	15.9	21.2	10.8
Diseases of the blood and blood forming organs (280–289)	4.7	62.9	4.7	4.4	4.9
DoD diagnosed	2.9	61.1	2.9	2.1	3.6
VA diagnosed	2.1	6.8	2.1	2.6	1.6
Before separating from military service	2.3	52.9	2.3	1.6	2.9
DoD diagnosed	2.2	52.0	2.2	1.5	2.8
VA diagnosed	0.1	1.8	0.1	0.1	0.1
After separating from military service	2.8	14.0	2.8	3.1	2.5
DoD diagnosed	0.8	10.0	0.8	0.6	1.0
VA diagnosed	2.1	5.4	2.1	2.5	1.6

¹ Broad ICD-9-CM diagnostic category

² October 1, 2003–March 31, 2009

³ October 1, 2003–September 30, 2011

Exhibit 10. Medical Conditions¹ Diagnosed at DoD² or VA,³ by Amputation Status.

Veterans diagnosed (percent) Diagnostic category (ICD-9-CM codes)	All 491,157	Amputee 221	Non-Amputee		
			All 490,936	OEF/OIF 243,667	Not OEF/OIF 247,269
Mental disorders (290–319)	41.9	90.5	41.9	45.3	38.4
DoD diagnosed	27.5	76.9	27.5	24.1	30.9
VA diagnosed	24.1	80.1	24.1	33.4	14.9
Before separating from military service	23.1	66.1	23.1	20.4	25.9
DoD diagnosed	22.4	65.2	22.4	19.4	25.4
VA diagnosed	1.5	7.2	1.5	1.8	1.1
After separating from military service	28.7	83.7	28.7	36.8	20.7
DoD diagnosed	8.1	28.5	8.1	7.5	8.8
VA diagnosed	23.7	80.1	23.7	33.1	14.4
Diseases of the nervous system and sense organs (320–389)	57.3	97.3	57.3	56.6	58.1
DoD diagnosed	47.8	93.2	47.8	42.0	53.5
VA diagnosed	22.4	79.6	22.4	29.3	15.6
Before separating from military service	43.3	84.2	43.3	37.4	49.0
DoD diagnosed	42.4	83.3	42.4	36.5	48.3
VA diagnosed	2.2	9.0	2.2	2.3	2.1
After separating from military service	30.8	81.9	30.8	35.9	25.8
DoD diagnosed	12.8	30.3	12.8	11.2	14.3
VA diagnosed	21.4	77.4	21.4	28.4	14.6
Diseases of the circulatory system (390–459)	21.2	53.8	21.2	22.7	19.8
DoD diagnosed	14.2	41.6	14.2	12.6	15.7
VA diagnosed	11.2	29.0	11.2	14.5	8.0
Before separating from military service	11.8	33.9	11.8	10.4	13.2
DoD diagnosed	11.4	33.0	11.4	9.9	12.9
VA diagnosed	0.8	2.7	0.8	0.9	0.7
After separating from military service	14.5	37.1	14.5	17.2	12.0
DoD diagnosed	5.1	13.1	5.1	4.5	5.7
VA diagnosed	11.0	28.5	11.0	14.2	7.8
Diseases of the respiratory system (460–519)	49.5	70.1	49.5	43.6	55.2
DoD diagnosed	43.2	56.6	43.2	34.1	52.1
VA diagnosed	13.7	39.4	13.7	17.7	9.8
Before separating from military service	38.9	47.5	38.9	30.0	47.6
DoD diagnosed	38.3	47.5	38.3	29.4	47.2
VA diagnosed	1.1	1.8	1.1	1.4	0.9
After separating from military service	21.8	48.4	21.8	24.0	19.6
DoD diagnosed	10.3	17.2	10.3	8.6	11.9
VA diagnosed	13.3	38.5	13.2	17.2	9.4
Diseases of the digestive system (520–579)	34.2	75.1	34.2	36.2	32.3
DoD diagnosed	21.8	38.0	21.8	18.7	24.9
VA diagnosed	18.1	63.3	18.0	23.7	12.5
Before separating from military service	19.2	31.7	19.2	17.0	21.4
DoD diagnosed	18.0	30.3	18.0	15.4	20.6
VA diagnosed	1.6	2.7	1.6	2.0	1.1
After separating from military service	21.8	67.4	21.8	26.2	17.4
DoD diagnosed	5.8	10.9	5.8	4.8	6.9
VA diagnosed	17.5	62.4	17.4	23.0	12.0

¹ Broad ICD-9-CM diagnostic category² October 1, 2003–March 31, 2009³ October 1, 2003–September 30, 2011

Exhibit 10. Medical Conditions¹ Diagnosed at DoD² or VA,³ by Amputation Status.

Veterans diagnosed (percent) Diagnostic category (ICD-9-CM codes)	All 491,157	Amputee 221	Non-Amputee		
			All 490,936	OEF/OIF 243,667	Not OEF/OIF 247,269
Diseases of the skin and subcutaneous tissue (680–709)	32.8	82.4	32.8	31.9	33.7
DoD diagnosed	26.1	68.3	26.0	22.1	29.9
VA diagnosed	10.9	48.9	10.9	14.6	7.2
Before separating from military service	22.3	59.7	22.3	19.0	25.6
DoD diagnosed	21.9	57.9	21.9	18.5	25.3
VA diagnosed	0.7	5.0	0.7	0.9	0.5
After separating from military service	16.3	60.2	16.3	18.7	13.9
DoD diagnosed	6.7	22.2	6.7	5.5	7.8
VA diagnosed	10.6	47.1	10.5	14.2	6.9
Diseases of the musculoskeletal system and connective tissue (710–739)	60.5	97.7	60.5	60.7	60.3
DoD diagnosed	50.5	95.9	50.5	45.4	55.5
VA diagnosed	27.4	81.0	27.4	36.0	18.9
Before separating from military service	45.9	86.0	45.9	41.0	50.7
DoD diagnosed	45.1	86.0	45.1	39.9	50.2
VA diagnosed	2.3	12.2	2.3	2.9	1.6
After separating from military service	35.7	86.4	35.7	42.4	29.1
DoD diagnosed	13.7	38.5	13.7	12.3	15.0
VA diagnosed	26.8	81.0	26.8	35.4	18.3
Symptoms, signs, and ill-defined conditions (780–799)	58.9	96.4	58.9	59.6	58.2
DoD diagnosed	48.2	93.7	48.2	43.3	52.9
VA diagnosed	25.0	77.4	25.0	33.4	16.7
Before separating from military service	42.2	85.1	42.2	37.9	46.3
DoD diagnosed	41.4	84.2	41.4	37.0	45.8
VA diagnosed	1.7	8.1	1.7	2.1	1.4
After separating from military service	35.1	85.1	35.0	41.2	29.0
DoD diagnosed	14.7	33.9	14.7	12.9	16.5
VA diagnosed	24.4	76.5	24.4	32.8	16.2
Injury and poisoning (800–999)	51.6	97.7	51.6	50.3	52.8
DoD diagnosed	45.5	97.3	45.5	41.2	49.7
VA diagnosed	14.6	81.9	14.5	19.7	9.4
Before separating from military service	40.3	89.6	40.2	36.4	44.0
DoD diagnosed	39.7	89.6	39.7	35.7	43.6
VA diagnosed	1.3	25.3	1.3	1.6	0.9
After separating from military service	23.1	90.5	23.1	26.5	19.7
DoD diagnosed	11.0	52.5	11.0	9.6	12.4
VA diagnosed	14.0	79.2	13.9	19.0	8.9
All diagnoses	96.4	100.0	96.4	97.1	95.6
DoD diagnosed	95.0	100.0	95.0	95.4	94.6
VA diagnosed	48.2	99.1	48.1	59.6	36.9
Before separating from military service	93.6	98.6	93.6	94.0	93.3
DoD diagnosed	93.1	98.6	93.1	93.5	92.6
VA diagnosed	10.8	64.7	10.8	12.6	9.0
After separating from military service	65.7	100.0	65.7	72.9	58.5
DoD diagnosed	40.6	72.4	40.6	38.4	42.7
VA diagnosed	45.6	99.1	45.6	57.3	34.0

¹ Broad ICD-9-CM diagnostic category

² October 1, 2003–March 31, 2009

³ October 1, 2003–September 30, 2011

Disease burdens of TBI and specific mental disorders by amputation status are given in Exhibit 11. Consistently, amputees were more likely than non-amputees to be diagnosed by DoD or VA with TBI and with each of the specific medical disorders after their separation, except for psychotic disorders (0.0 percent for amputees and 0.8 percent of OEF/OIF and 0.5 percent of non-OEF/OIF non-amputees, respectively). Percentages of amputees diagnosed with specific disorders after discharge were: TBI 41.2 percent, adjustment disorders 29.4 percent, anxiety disorders excluding PTSD 21.7 percent, PTSD 64.3 percent, major depression 15.4 percent, mood disorders 40.3 percent, and substance-related disorders 15.8 percent (13.1 percent for alcohol-related disorders and 5.9 percent for drug-related disorders).

Exhibit 11. TBI or Mental Disorders Diagnosed at DoD¹ or VA,² by Amputation Status.

Veterans diagnosed (percent)	All 491,157	Amputee 221	Non-Amputee		
			All 490,936	OEF/OIF 243,667	Not OEF/OIF 247,269
TBI	4.6	62.4	4.6	6.5	2.7
DoD diagnosed	1.9	45.7	1.9	2.0	1.8
VA diagnosed	3.1	36.2	3.1	5.1	1.1
Before separating from military service	1.4	38.5	1.4	1.6	1.3
DoD diagnosed	1.4	38.5	1.4	1.6	1.2
VA diagnosed	0.1	1.8	0.1	0.1	0.1
After separating from military service	3.5	41.2	3.5	5.4	1.6
DoD diagnosed	0.6	11.3	0.6	0.5	0.6
VA diagnosed	3.1	35.7	3.1	5.1	1.1
Adjustment disorders	14.2	46.2	14.2	14.9	13.6
DoD diagnosed	8.7	30.8	8.7	6.8	10.6
VA diagnosed	6.5	22.6	6.5	9.3	3.7
Before separating from military service	7.5	25.3	7.5	5.8	9.2
DoD diagnosed	7.4	24.4	7.3	5.5	9.1
VA diagnosed	0.3	1.4	0.3	0.4	0.2
After separating from military service	7.7	29.4	7.7	10.3	5.2
DoD diagnosed	1.7	9.5	1.7	1.5	1.9
VA diagnosed	6.3	21.7	6.3	9.1	3.5
Anxiety disorders	18.8	71.9	18.7	25.6	12.0
DoD diagnosed	6.7	39.4	6.7	6.9	6.4
VA diagnosed	15.0	64.3	15.0	23.0	7.2
Before separating from military service	5.5	32.6	5.5	5.8	5.3
DoD diagnosed	5.2	31.2	5.2	5.3	5.1
VA diagnosed	0.5	4.1	0.5	0.8	0.3
After separating from military service	15.9	67.0	15.9	23.6	8.2
DoD diagnosed	2.0	14.9	2.0	2.3	1.7
VA diagnosed	14.9	64.3	14.9	22.8	7.1
Anxiety disorders excluding PTSD	11.7	38.0	11.6	14.0	9.3
DoD diagnosed	5.2	25.3	5.2	4.7	5.6
VA diagnosed	7.8	19.0	7.8	10.8	4.7
Before separating from military service	4.3	21.7	4.3	3.9	4.7
DoD diagnosed	4.1	21.3	4.1	3.7	4.6
VA diagnosed	0.2	1.4	0.2	0.3	0.2
After separating from military service	8.6	21.7	8.6	11.6	5.7
DoD diagnosed	1.3	5.4	1.3	1.3	1.4
VA diagnosed	7.7	18.1	7.6	10.7	4.6
PTSD	12.8	66.5	12.7	20.5	5.1
DoD diagnosed	2.6	28.5	2.6	3.8	1.3
VA diagnosed	11.8	61.5	11.8	19.4	4.3
Before separating from military service	2.0	22.6	2.0	3.1	0.9
DoD diagnosed	1.8	20.8	1.8	2.7	0.9
VA diagnosed	0.3	4.1	0.3	0.6	0.1
After separating from military service	12.1	64.3	12.0	19.7	4.5
DoD diagnosed	1.0	13.1	1.0	1.5	0.5
VA diagnosed	11.7	61.5	11.7	19.3	4.2

¹ October 1, 2003–March 31, 2009

² October 1, 2003–September 30, 2011

Exhibit 11. TBI or Mental Disorders Diagnosed at DoD¹ or VA,² by Amputation Status.

Veterans diagnosed (percent)	All 491,157	Amputee 221	Non-Amputee		
			All 490,936	OEF/OIF 243,667	Not OEF/OIF 247,269
Major depression	7.1	16.7	7.1	8.4	5.9
DoD diagnosed	3.0	5.0	3.0	2.4	3.5
VA diagnosed	4.9	14.5	4.9	6.8	3.1
Before separating from military service	2.6	4.1	2.6	2.2	3.1
DoD diagnosed	2.5	3.6	2.5	2.0	3.0
VA diagnosed	0.2	0.9	0.2	0.2	0.2
After separating from military service	5.3	15.4	5.3	7.1	3.6
DoD diagnosed	0.7	1.8	0.7	0.6	0.7
VA diagnosed	4.8	14.0	4.8	6.7	3.0
Mood disorders	18.0	50.7	18.0	20.9	15.2
DoD diagnosed	8.2	24.4	8.2	6.5	9.9
VA diagnosed	12.8	38.5	12.8	17.7	8.0
Before separating from military service	7.2	22.6	7.2	5.7	8.7
DoD diagnosed	6.9	21.3	6.9	5.3	8.5
VA diagnosed	0.6	2.7	0.6	0.6	0.5
After separating from military service	13.8	40.3	13.7	18.3	9.2
DoD diagnosed	2.0	5.4	2.0	1.7	2.2
VA diagnosed	12.6	38.0	12.6	17.5	7.7
Personality disorders	3.1	3.2	3.1	2.2	3.9
DoD diagnosed	2.3	1.4	2.3	1.3	3.3
VA diagnosed	1.0	1.8	1.0	1.1	0.9
Before separating from military service	2.2	1.4	2.2	1.2	3.2
DoD diagnosed	2.2	1.4	2.2	1.2	3.1
VA diagnosed	0.1	0.0	0.1	0.0	0.2
After separating from military service	1.1	1.8	1.1	1.3	1.0
DoD diagnosed	0.3	0.0	0.3	0.2	0.3
VA diagnosed	0.9	1.8	0.9	1.1	0.7
Psychotic disorders	1.0	0.5	1.0	1.0	0.9
DoD diagnosed	0.4	0.5	0.4	0.3	0.5
VA diagnosed	0.6	0.0	0.6	0.8	0.5
Before separating from military service	0.4	0.5	0.4	0.3	0.5
DoD diagnosed	0.4	0.5	0.4	0.3	0.5
VA diagnosed	0.0	0.0	0.0	0.0	0.0
After separating from military service	0.7	0.0	0.7	0.8	0.5
DoD diagnosed	0.1	0.0	0.1	0.1	0.1
VA diagnosed	0.6	0.0	0.6	0.8	0.5
Substance-related disorders	10.4	21.7	10.4	12.6	8.3
DoD diagnosed	5.5	9.0	5.5	5.2	5.7
VA diagnosed	6.1	15.8	6.1	9.0	3.4
Before separating from military service	4.9	8.1	4.9	4.8	5.1
DoD diagnosed	4.8	8.1	4.8	4.6	5.0
VA diagnosed	0.2	0.0	0.2	0.3	0.2
After separating from military service	6.7	15.8	6.7	9.4	4.1
DoD diagnosed	0.9	1.4	0.9	0.9	1.0
VA diagnosed	6.0	15.8	6.0	8.9	3.2

¹ October 1, 2003–March 31, 2009

² October 1, 2003–September 30, 2011

Exhibit 11. TBI or Mental Disorders Diagnosed at DoD¹ or VA,² by Amputation Status.

Veterans diagnosed (percent)	All 491,157	Amputee 221	Non-Amputee		
			All 490,936	OEF/OIF 243,667	Not OEF/OIF 247,269
Alcohol-related disorders	9.1	16.7	9.1	11.3	6.9
DoD diagnosed	4.8	5.9	4.8	4.7	4.8
VA diagnosed	5.3	13.1	5.3	7.9	2.7
Before separating from military service	4.3	5.9	4.3	4.4	4.3
DoD diagnosed	4.2	5.9	4.2	4.2	4.2
VA diagnosed	0.2	0.0	0.2	0.3	0.2
After separating from military service	5.8	13.1	5.8	8.3	3.3
DoD diagnosed	0.8	0.5	0.8	0.8	0.8
VA diagnosed	5.2	13.1	5.2	7.8	2.6
Drug-related disorders	4.4	10.4	4.4	5.1	3.7
DoD diagnosed	2.0	5.9	2.0	1.7	2.3
VA diagnosed	2.7	5.9	2.7	3.8	1.6
Before separating from military service	1.8	5.0	1.8	1.5	2.0
DoD diagnosed	1.7	5.0	1.7	1.5	2.0
VA diagnosed	0.1	0.0	0.1	0.1	0.1
After separating from military service	3.0	5.9	3.0	4.1	2.0
DoD diagnosed	0.4	0.9	0.4	0.4	0.4
VA diagnosed	2.7	5.9	2.7	3.8	1.6

¹ October 1, 2003–March 31, 2009

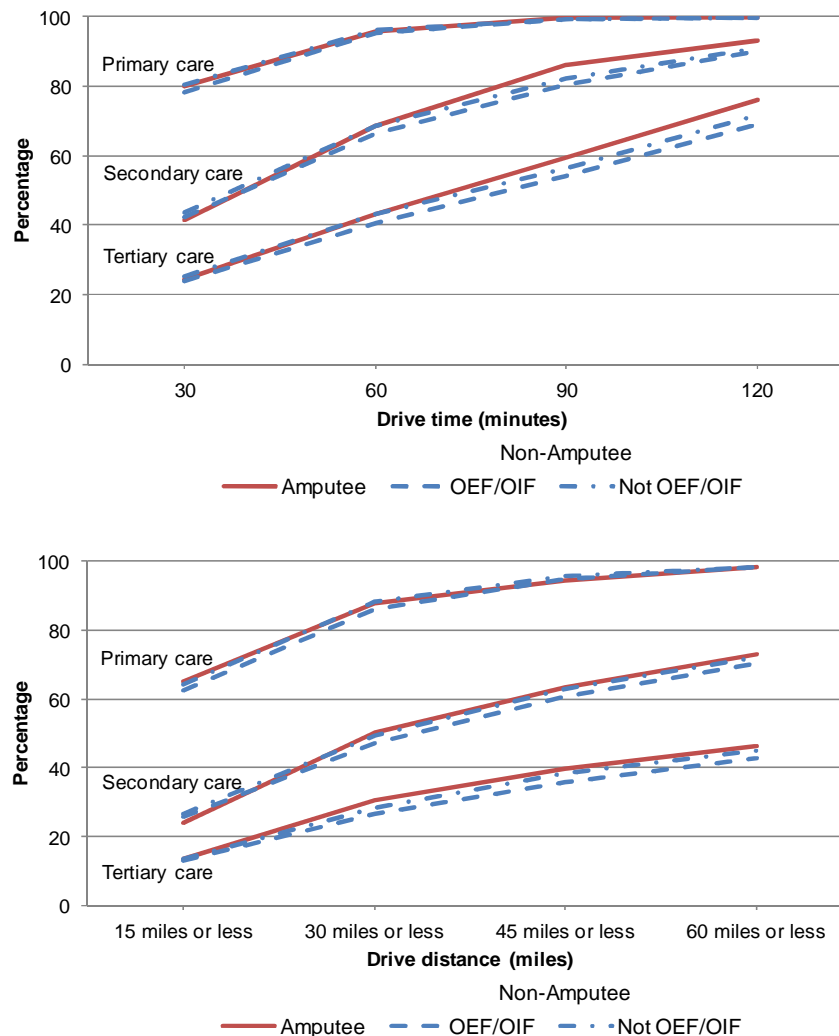
² October 1, 2003–September 30, 2011

5. Veteran Cohorts' Travel Time and Distance to VA Care

Exhibit 12 depicts driving time and distance to VA primary,²⁴ secondary, and tertiary care as of September 2010 by amputation status. Amputees' and non-amputees' patterns were quite similar for primary, secondary, and tertiary care, whether by driving time or distance.

To receive fee-basis care, veterans have to go to a VHA facility for approval. Nearly 80 percent of the veteran population lived within 30 minutes driving to the closest VA primary care site. In terms of drive distance, over 80 percent of the veterans lived within 30 miles to the closest VA primary care site.

Exhibit 12. Veterans Cohorts' Travel Time and Distance to VA Primary, Secondary, and Tertiary Care, as of September 30, 2010, by Amputation Status.



²⁴ VA primary care sites include Community Based Outpatient Clinics.

Conclusions

Based on the integrated data from both DoD and VA, we characterized the population of nearly half a million veterans discharged from active duty during July 1, 2005, to September 30, 2006. We followed them for their experience transitioning to and using VA health care and benefits through September 30, 2011. Every veteran in the population had at least 5 years of follow-up opportunity. In this first ever study, we compared characteristics and disease burdens of veterans with traumatic major limb amputations with those non-amputee counterparts in this veteran population.

Veterans with traumatic amputations account for less than half of one percent of the study population. Most (99.1 percent) veterans with traumatic amputations transitioned to VA care within 5 years. As of September 30, 2011, 93.2 percent of the amputees had used VA prosthetic care.

The amputees had more co-morbidities. Consistently, DoD or VA diagnosed a much higher proportion of amputees, in each broad medical condition category, than their non-amputee counterparts; even after accounting for the 27 percent of OEF/OIF and 41.5 percent non-OEF/OIF non-amputees, who had not used VA or DoD care after separation from active duty.

After separation from active duty, over 80 percent of amputees had diagnoses in each of the following categories: mental disorders, diseases of the nervous system and sense organs, and diseases of the musculoskeletal system and connective tissue, in addition to the expected category of injury and poisoning. A greater percent (92 for amputees versus 33 for OEF/OIF non-amputees) of the amputees received service-connected disability and had higher disability ratings (median: 100 percent) than the non-amputees (median: 40 percent).

Veterans with amputations are significant users of all VA healthcare services, not just prosthetic services. They are a complex population with a variety of medical conditions; thus, they require more services and products. VA should pay special attention to coordinating services that provide comprehensive interdisciplinary care for amputees to meet their multiple needs.

Recommendation 1: We recommended that the Under Secretary for Health consider the wide-ranging medical needs of traumatic amputees beyond the prosthetic and mental health concerns identified in this report; then adjust, if necessary, the provision and management of healthcare services accordingly.

Issue 3: Characteristics of OEF/OIF/OND Amputee Population and OEF/OIF/OND Amputee Veterans' Functional Status, Psychosocial Adjustment, and Satisfaction with VA Care

Summary of Findings

Based on the integrated data from both DoD and VA, this is the first ever study to characterize the population of 1,288 OEF/OIF/OND servicemembers with major traumatic amputations. We followed them for their experience transitioning to and using VA health care and benefits through September 30, 2011. We compared characteristics and disease burdens of OEF/OIF/OND servicemembers discharged from military service with those remaining on active duty with traumatic major limb amputations in this population.

For the veterans in the population, we compared their disease burden after discharge with those before their discharge. Over 97 percent of the 838 OEF/OIF/OND veterans had used VA for care within the first 5 years after discharge. Almost all (98 percent) of the veterans had at least one diagnosed medical condition by DoD or VA after discharge. The most frequent diagnostic categories other than injury were mental disorders (77 percent), diseases of the musculoskeletal system and connective tissue (75 percent), and diseases of the nervous system and sense organs (70 percent).

We conducted in-person visits for a statistically representative sample of veterans with lower limb amputations and telephone interviews for all upper extremity only amputees who agreed to participate to assess their psychosocial adjustment, physical abilities, and prosthetic satisfaction. Consistently, veterans with upper limb amputations only reported lower psychosocial adjustment, physical abilities, and prosthetic satisfaction than those with lower limb amputations. In open-ended comments, veterans concerns with VA prosthetic services centered on the VA approval process for fee-basis or VA contract care on prosthetic services, prosthetic expertise, and difficulty with accessing VA services.

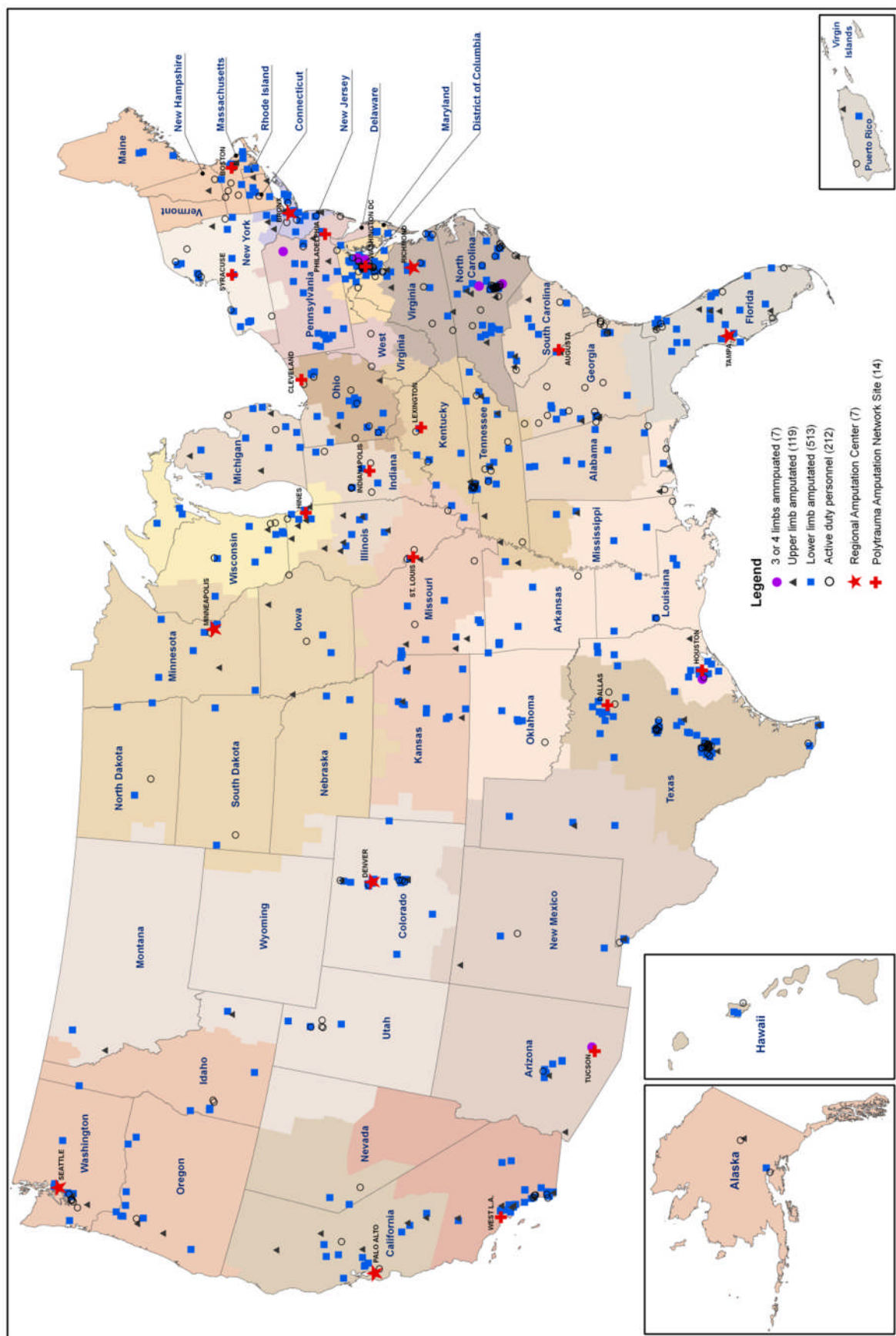
Details of Findings

1. Characteristics of OEF/OIF/OND Amputee Population

Of the 1,506 DoD amputee population, we excluded from our analyses a total of 218 amputees, 180 of them were not affiliated with OEF/OIF/OND and the other 38 were deceased. As of September 30, 2011, 838 (65 percent) of the 1,288 in the DoD OEF/OIF/OND amputee population were discharged from active military service (veterans) and 450 remained in active duty. Active duty included servicemembers who had returned to duty as well as those undergoing rehabilitation at military facilities.

Exhibit 13 mapped out where these DoD OEF/OIF/OND amputees were living for those 852 servicemembers whose home addresses were available and sufficient for geo-coding.

Exhibit 13. OEF/OIF/OND Servicemembers with Traumatic Major Amputations.



Demographic and Limb Loss Characteristics. Exhibit 14 shows the demographic characteristics of the amputee population. The date of birth was unknown for about 49 percent of active duty amputees and 4 percent of the discharged amputees. Among those with a known date of birth, the distributions of age on date of injury were similar whether they were discharged or remained in active duty, with the median age of 24 years. However, amputees who remained in active duty tended to be younger, with the current (September 30, 2011) median age of 27 years for active duty amputees versus 29 years for those discharged.

Exhibit 14. Demographic Characteristics of Amputee Population.

	Total (1,288)	Discharged (838)	Active Duty (450)
Unknown date of birth (%)	19.3	3.6	48.7
Age on Date of Injury ¹ (years)			
mean	25.3	25.2	25.9
median	24	24	24
percentages in age groups:			
18–21	26.2	27.0	23.4
22–25	37.2	37.5	35.9
26–29	18.0	18.2	17.3
30–34	10.7	9.8	13.9
35 or over	8.0	7.5	9.5
Age as of September 30, 2011 ¹ (years)			
mean	30.3	30.6	29.2
median	29	29	27
percentages in age groups:			
18-21	1.7	0.2	6.9
22-25	18.6	15.2	30.3
26-29	34.4	37.6	22.9
30-34	26.5	28.2	20.3
35 or over	18.9	18.7	19.5
Gender (%)			
Female	1.7	1.9	1.3
Male	98.3	98.1	98.7
Branch (%)			
Air Force/Navy	3.6	3.3	4.0
Army	68.4	76.3	53.8
Marines	28.0	20.4	42.2
Rank (%)			
Enlisted	92.8	92.7	92.9
Officer/Warrant Officer	7.2	7.3	7.1
Event (%)			
OEF	37.2	16.5	75.8
OIF/OND	62.8	83.5	24.2

¹ Excluded 249 Veterans without date of birth from calculation

Over 98 percent of amputees were male. Sixty-eight percent of amputees served in the Army and 28 percent in the Marines. About three out of four amputees discharged served in the Army, and one out of five discharged served in the Marines. In contrast, for those who remained in active duty, 54 percent served in the Army and 42 percent served in the Marines. Ninety-three percent of all amputees were enlisted servicemembers.

Thirty-seven percent served in OEF. Among discharged amputees, 17 percent were OEF veterans, compared to 76 percent for those who remained in active duty.

Exhibit 15 depicts the distribution of amputees by limb loss and service status as of September 30, 2011. About 60 percent of amputees had amputation of one lower limb regardless of their service status. One percent of the discharged veterans had three or four limbs amputated, in contrast to 5.6 percent of amputees who remained in active duty. However, among those who remained in active duty, the percentage of upper limb amputations (excluding those with three or four amputated limbs), was about 7 percent, which is much lower than discharged veterans (20 percent).

Exhibit 15. Percentage of Amputees by Limb Loss and Service Status.

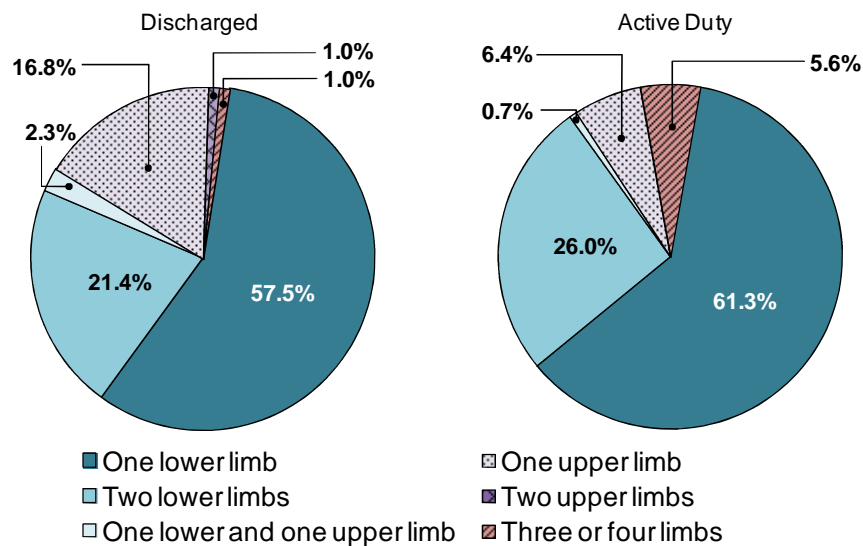


Exhibit 16 gives demographic characteristics of the amputee population by service status and number of amputated limbs. The distributions of age on the date of injury were similar for those who were discharged or remained in active duty. However, amputees who remained in active duty tended to be younger. Among those who remained in active duty and with two or more limbs amputated, 64 percent of them were in the Marines.

Exhibit 16. Demographic Characteristics of Amputee Population by Service Status and Number of Amputated Limbs.

	All Amputees (1,288)				Discharged Amputees (838)			Active Duty Amputees (450)		
	All Amputees (1,288)	One Limb Amputated (929)	Two Limbs Amputated (326)	Three or Four Limbs Amputated (33)	One Limb Amputated (624)	Two Limbs Amputated (206)	Three or Four Limbs Amputated (8)	One Limb Amputated (305)	Two Limbs Amputated (120)	Three or Four Limbs Amputated (25)
Age on Date of Injury ¹ (years)										
Mean	25.3	25.5	24.8	24.6	25.3	24.7	25.3	26.1	25.4	23.0
Median	24	24	23	24	24	24	24	24	23	23
Minimum	18	18	19	21	18	19	21	19	19	22
Maximum	50	50	46	39	50	46	39	44	46	24
Age as of September 30, 2011 ¹										
Mean	30.3	30.6	29.3	28.8	30.9	29.7	30.4	29.6	27.5	24.7
Median	29	29	28	29	29	29	29	28	26	25
Minimum	19	19	20	24	21	21	25	19	20	24
Maximum	59	59	50	40	59	50	40	49	48	25
Branch (%)										
Air Force/Navy	3.6	3.9	2.5	6.1	3.5	2.4	12.5	4.6	2.5	4.0
Army	68.4	72.2	59.8	45.5	76.4	75.2	87.5	63.6	33.3	32.0
Marines	28.0	23.9	37.7	48.5	20.0	22.3	0.0	31.8	64.2	64.0
Rank (%)										
Enlisted	92.8	92.1	94.2	97.0	92.1	94.2	100.0	92.1	94.2	96.0
Officer/Warrant Officer	7.2	7.9	5.8	3.0	7.9	5.8	0.0	7.9	5.8	4.0

¹ Excluded 249 Veterans without date of birth from calculation

Exhibit 17 shows number of amputated limbs by service branch and by military rank. About 38 percent of amputees who served in the Marines had more than one of their limbs amputated, in contrast to 22 percent of those in the Air Force/Navy and 24 percent of those in the Army. For those amputees who remained on active duty, one out of two Marines had two or more limbs amputated, while one out of five amputees in other service branches had two or more limbs amputated.

Exhibit 17. Number of Amputated Limbs by Service Branch and by Military Rank.

	Branch			Rank	
	Air Force/Navy	Army	Marines	Enlisted	Officer/ Warrant Officer
All Amputees (#)	46	881	361	1195	93
% Amputees with:					
One amputated limb	78.3	76.2	61.5	71.6	78.5
Two amputated limbs	17.4	22.1	34.1	25.7	20.4
Three or four amputated limbs	4.3	1.7	4.4	2.7	1.1
Discharged Amputees (#)	28	639	171	777	61
% Amputees with:					
One amputated limb	78.6	74.6	73.1	74.0	80.3
Two amputated limbs	17.9	24.3	26.9	25.0	19.7
Three or four amputated limbs	3.6	1.1	0.0	1.0	0.0
Active Duty Amputees (#)	18	242	190	418	32
% Amputees with:					
One amputated limb	77.8	80.2	51.1	67.2	75.0
Two amputated limbs	16.7	16.5	40.5	27.0	21.9
Three or four amputated limbs	5.6	3.3	8.4	5.7	3.1

Burden of Diseases. Exhibit 18 lists medical conditions (by broad ICD-9-CM diagnostic category) diagnosed at DoD or VA by service status as of September 30, 2011. Consistently, amputees who remained in active duty had a lower percentage of each broad category medical conditions diagnosed at DoD or VA than their discharged counterparts before their separation. For discharged amputees, although diagnoses for any medical condition increased from 96.2 percent before separation to 98.1 percent after separation, percentages of their medical conditions after discharge were lower than those before their separation from the military except for mental disorders (76.0 percent before discharge versus 76.8 percent after) and diseases of digestive system (46.4 percent before discharge versus 55.0 percent after).

Exhibit 18. Medical Conditions¹ Diagnosed at DoD² or VA,³ by Service Status.

Veterans diagnosed (%)	All Amputees (1,288)			Amputees Discharged from DoD (838)						Amputees Not Discharged from DoD (450)		
				Before Discharge			After Discharge					
Diagnostic category (ICD-9-CM codes)	DoD or VA	DoD	VA	DoD or VA	DoD	VA	DoD or VA	DoD	VA	DoD or VA	DoD	VA
Infectious and parasitic diseases (001–139)	57.8	52.5	13.9	59.5	58.7	3.0	22.0	6.1	17.4	35.6	33.6	3.8
Malignant neoplasms (140–208)	2.5	2.0	0.7	2.6	2.5	0.1	1.1	0.1	1.0	0.7	0.7	0.0
Benign neoplasms (210–239)	12.5	8.5	4.8	8.6	8.4	0.2	8.2	1.6	6.9	6.2	5.8	0.4
Endocrine, nutritional and metabolic disease, and immunity disorders (240–279)	48.1	35.9	25.2	42.2	41.3	3.7	37.9	4.8	35.7	21.6	19.6	3.3
Diseases of the blood and blood forming organs (280–289)	48.8	46.2	6.0	58.9	58.4	2.4	9.1	3.2	6.3	20.0	17.6	2.4
Mental disorders (290–319)	72.0	62.4	53.5	76.0	74.0	21.2	76.8	14.4	74.5	36.2	31.1	9.3
Diseases of the nervous system and sense organs (320–389)	82.4	75.8	57.9	87.5	85.9	33.9	69.8	14.2	65.3	56.7	47.3	22.0
Diseases of the circulatory system (390–459)	39.4	32.5	16.1	40.3	39.5	4.1	24.9	5.0	22.0	15.8	14.0	2.2
Diseases of the respiratory system (460–519)	64.7	57.7	20.0	60.0	59.1	3.6	32.1	7.2	27.1	47.8	47.1	2.9
Diseases of the digestive system (520–579)	56.9	38.7	37.9	46.4	43.2	9.3	55.0	5.5	52.3	26.4	23.8	6.0
Diseases of the skin and subcutaneous tissue (680–709)	67.8	58.9	29.0	65.8	64.0	6.2	44.6	10.6	38.3	44.2	40.9	6.2
Diseases of the musculoskeletal system and connective tissue (710–739)	80.5	76.1	53.4	87.1	86.3	25.4	74.5	18.7	69.9	51.8	47.6	13.8
Symptoms, signs, and ill-defined conditions (780–799)	80.7	76.2	47.5	85.9	85.0	13.0	69.8	16.8	64.8	53.3	49.6	9.3
Injury and poisoning (800–999)	83.9	80.5	59.6	90.6	90.0	32.8	80.0	30.7	72.0	60.2	53.3	23.6
All diagnoses	96.6	93.8	89.0	96.2	96.1	78.6	98.1	46.2	97.1	90.2	82.2	70.2

¹ Broad ICD-9-CM diagnostic category

² October 1, 2003–March 31, 2009

³ October 1, 2003–September 30, 2011

Exhibit 19 shows disease burdens of TBI and specific mental disorders by service status. Consistently, amputees who remained in active duty had lower percentages of TBI and each specific mental disorder diagnosed at DoD or VA than their discharged counterparts before their separation, except for the similar percentage in personality disorder (0.6 percent of discharged amputees and 0.7 percent of amputees who remained in active duty). For discharged amputees, the percentage of TBI diagnosis after discharge was lower than before discharge. However, percentages of their specific mental disorder conditions after discharge were higher than those before their separation from the military, except for adjustment disorders (33.4 percent before discharge versus 21.5 percent after) and psychotic disorders (1.4 percent before discharge versus 0.8 percent after).

Exhibit 19. TBI or Mental Disorders Diagnosed at DoD¹ or VA,² by Service Status.

Veterans diagnosed (%)	All Amputees (1,288)			Amputees Discharged from DoD (838)						Amputees Not Discharged from DoD (450)		
				Before Discharge			After Discharge					
	DoD or VA	DoD	VA	DoD or VA	DoD	VA	DoD or VA	DoD	VA	DoD or VA	DoD	VA
TBI	49.3	41.1	25.9	51.7	50.7	8.7	35.2	5.0	32.6	18.9	16.2	5.1
Adjustment disorders	35.6	26.8	14.4	33.4	31.7	3.7	21.5	3.5	18.4	15.3	12.7	3.1
Anxiety disorders	51.9	30.2	42.5	42.2	37.4	13.2	61.3	7.4	59.9	16.0	10.7	5.8
Anxiety disorders excluding PTSD	29.5	21.4	12.7	27.4	26.5	2.9	19.3	3.1	16.9	9.1	8.0	1.1
PTSD	44.3	20.0	39.9	31.0	25.2	12.2	57.8	5.7	56.7	9.3	5.1	4.7
Major depression	12.0	6.0	7.5	7.8	6.9	1.3	11.6	1.3	10.5	2.7	2.2	0.4
Mood disorders	34.5	19.9	23.7	26.5	24.1	4.7	35.0	4.2	32.9	8.7	6.7	2.2
Personality disorders	1.3	0.5	0.8	0.6	0.5	0.1	1.2	0.0	1.2	0.7	0.7	0.0
Psychotic disorders	1.9	1.4	0.5	1.4	1.4	0.1	0.8	0.0	0.8	1.3	1.3	0.0
Substance-related disorders	15.3	8.1	10.3	10.5	9.8	1.7	14.9	1.0	14.7	5.1	4.2	1.3
Alcohol-related disorders	11.2	4.9	7.6	6.6	5.6	1.3	10.9	0.5	10.6	3.8	3.1	1.1
Drug-related disorders	10.5	6.8	6.0	9.2	8.9	0.7	8.7	0.5	8.7	3.1	2.7	0.4

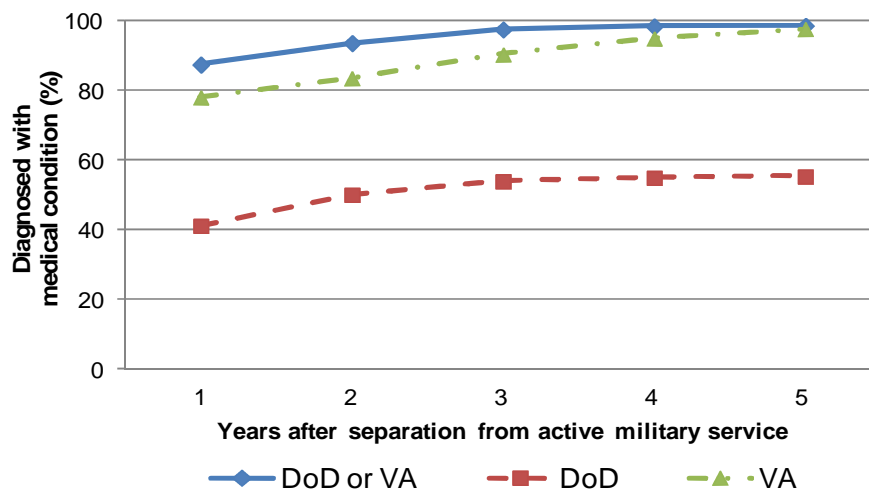
¹ October 1, 2003–March 31, 2009

² October 1, 2003–September 30, 2011

The percentage of anxiety disorders diagnosed at DoD or VA among discharged amputees increased from 42.2 percent before discharge to 61.3 percent after discharge. When looking separately at PTSD and anxiety disorders excluding PTSD, PTSD diagnoses increased dramatically from 31.0 percent to 57.8 percent while anxiety disorders excluding PTSD decreased from 27.4 percent to 19.3 percent. The percent of alcohol-related disorders after discharge increased from 6.6 percent to 10.9 percent, in contrast to drug-related disorders that decreased from 9.2 percent to 8.7 percent. However, the substance-related disorders diagnoses (combining both drug and alcohol related disorders) increased from 10.5 percent to 14.9 percent.

Transition to VA Health Care after Separation from Active Duty. For those amputees discharged from active duty, Exhibit 20 indicates the percentage of amputees who first used (as defined by their first medical condition diagnosis) DoD or VA increased from 87.2 percent in the first year after military separation to 98.4 percent at the end of the fifth year after separation. The use of VA increased from 77.8 percent to 97.4 percent during the first 5 years after separation.

Exhibit 20. Time to First Medical Diagnosis at DoD¹ or VA² after Military Separation.



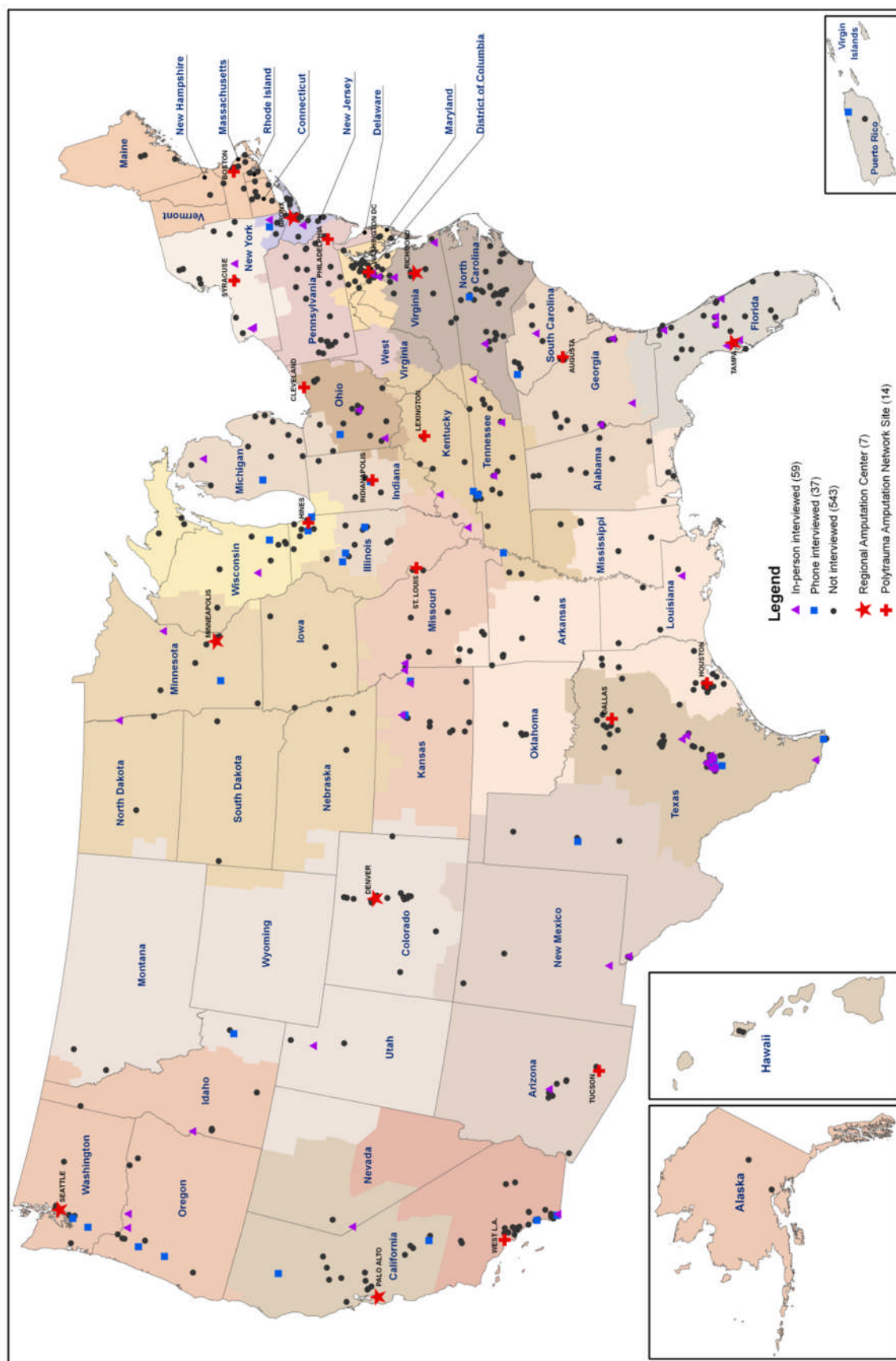
¹ October 1, 2003–March 31, 2009

² October 1, 2003–September 30, 2011

2. Functional Status and Psychosocial Adjustment of the OEF/OIF/OND Amputee Veterans

We limited our evaluation of OEF/OIF/OND amputees' functional status and their overall psychosocial adjustment to those 838 Servicemembers who discharged from active duty as of September 30, 2011. These veterans represented 65.1 percent of the DoD OEF/OIF/OND amputee population. Exhibit 21 shows where these amputee veterans were living for those with their home addresses sufficient for geo-coding.

Exhibit 21. OEF/OIF/OND Veterans with Traumatic Major Amputations.



Among the 838 amputee veterans, 8 had 3 or 4 limbs amputated. We tried to contact all of the eight for an in-person visit and for telephone interviews, but were able to interview only one by telephone; however, this veteran's responses to our telephone interview were inconsistent (Study ID: D20001075). Thus, we excluded him from our analysis. We were able to interview two in person (Study ID: D00000511 and D00000800). We made at least three call attempts to contact each of the five remaining veterans. One did not return our calls, and the other four declined to participate.

One veteran (Study ID: D00000511) we interviewed had relocated and was going to college full-time. He had one leg amputated at the hip, the other leg amputated high above the knee, and one arm amputated below the elbow. He praised his prosthetist, stating he never would have been able to walk again if it was not for the detailed time and attention he got from the prosthetist. He reported using a manual wheelchair to get around at school. He uses forearm crutches to walk with his prosthesis, for limited distances. He reported a high satisfaction with life and his prosthetic limbs. He did not feel his artificial limbs limited him in any activities he chose. He has been able to adapt to using his non-dominant hand and reported that although things might take him more time to complete, he did not have difficulty performing the tasks. He reported the VA had been very helpful. He wished there was less "red-tape" involved in getting what he needs. It takes time to go to the clinic and tell them what he needs; going to school full-time limits his time during normal business hours to go to the VA, as well as going to the VA before seeing the contracted prosthetist for his needs.

For the 830 veterans with one or two limbs amputated, 681 had at least one lower extremity amputation and 149 had upper extremity amputations only. We contacted 46 veterans with upper extremity amputations only who completed telephone interviews.

Among the 681 veterans with lower extremity amputations, 59 of the 192 selected veterans participated in our in-person visits.

Exhibit 22 shows veterans with upper limb amputations had similar percentages for using VA after discharge (96.1 percent of non-participants versus 97.8 percent participants). Therefore, information gathered from participants of telephone interviews may be generalized to all veterans with upper extremity amputations in our population.

Exhibit 22. Characteristics of OEF/OIF/OND Veterans with Upper Limb Amputations Only by Participation Status of Telephone Interview.

	Upper Limb Only Amputees (149)		Participant (46)		Non-Participant (103)	
	#	Percentage	#	Percentage	#	Percentage
Amputated Limbs						
One upper limb	141	94.6	46	100.0	95	92.2
Two upper limbs	8	5.4			8	7.8
Used VA Health Care After Military Separation	144	96.6	45	97.8	99	96.1

For non-participants, 95.4 percent were VA users after their discharge (Exhibit 23), compared to 96.8 percent of participants. The amputation distribution by number and location were similar for both participants and non-participants. Therefore, information gathered from participants of in-person visits may be generalized to all veterans with lower extremity amputations in our population.

Exhibit 23. Characteristics of OEF/OIF/OND Veterans with Lower Limb Amputations by Participation Status of In-Person Visit.

	Lower Limb Amputees (681)		Sampled Amputees (192)			
			Participant (59)		Non-Participant (133)	
	#	Percentage	#	Estimate (%)	#	Estimate (%)
Amputated Limbs						
One lower limb	483	70.9	40	67.1 (50.63, 80.22)	103	73.1 (62.34, 81.66)
Two lower limbs	179	26.3	15	27.7 (15.63, 44.29)	27	22.6 (14.79, 33.00)
One lower and one upper limb	19	2.8	4	5.2 (1.39, 17.38)	3	4.3 (1.38, 12.56)
Used VA Health Care After Military Separation	662	97.2	58	96.8 (80.10, 99.56)	129	95.4 (87.38, 98.43)

Psychosocial Adjustment by OEF/OIF/OND Veterans with Amputations

Exhibit 24 gives estimates for psychosocial adjustment self-reported by OEF/OIF/OND veterans with one or two limb amputations (in the order the questions were asked), by veterans with lower extremity amputations or only upper extremity amputations, separately. Exhibits 25–31 chart each of the seven items on the instrument.

Exhibit 24. Psychosocial Adjustment of OEF/OIF/OND Veterans with Amputations.

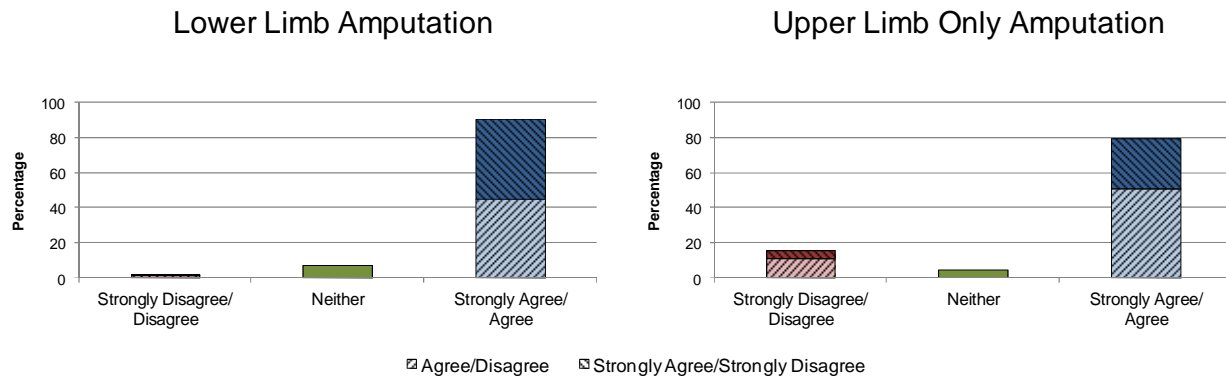
Psychosocial Adjustment	# of Participants	Estimates (95% C.I.) of OEF/OIF/OND Veterans (%)				
		Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Lower Limb Amputation						
Although you have an artificial limb, your life is full	59	0.7 (0.11, 3.71)	1.3 (0.38, 4.37)	7.1 (1.97, 22.45)	45.2 (30.26, 61.04)	45.8 (30.64, 61.73)
You have gotten used to wearing an artificial limb	59	1.3 (0.38, 4.37)	4.5 (1.04, 17.58)	7.7 (2.37, 22.47)	31.6 (18.99, 47.74)	54.8 (38.96, 69.74)
You do not mind people asking about your artificial limb	59	0.7 (0.11, 3.71)	7.1 (1.97, 22.45)	5.2 (1.40, 17.27)	43.2 (28.35, 59.39)	43.9 (29.08, 59.88)
Having an artificial limb makes you more dependent on others than you'd like to be	59	12.9 (5.41, 27.73)	10.3 (4.15, 23.50)	22.6 (11.65, 39.17)	35.5 (22.05, 51.71)	18.7 (8.91, 35.07)
If you work, an artificial limb interferes with the ability to do your work	44	13.9 (5.30, 31.76)	37.0 (20.84, 56.69)	17.6 (7.17, 37.10)	25.0 (12.99, 42.80)	6.5 (1.49, 24.08)
If you work, having an artificial limb limits the kind of work that you can do	44	8.3 (2.58, 23.89)	11.1 (3.43, 30.54)	9.2 (2.31, 30.45)	27.8 (15.32, 45.15)	43.5 (26.26, 62.41)
If you work, having an artificial limb limits the amount of work that you can do	44	6.5 (1.49, 24.08)	13.9 (5.30, 31.76)	9.3 (3.18, 24.20)	40.7 (23.98, 59.93)	29.6 (15.36, 49.39)
Upper Limb Only Amputation						
Although you have an artificial limb, your life is full	45	4.4 (1.35, 13.67)	11.1 (5.30, 21.82)	4.4 (1.35, 13.67)	51.1 (38.69, 63.40)	28.9 (18.88, 41.49)
You have gotten used to wearing an artificial limb	44	15.9 (8.61, 27.54)	15.9 (8.61, 27.54)	6.8 (2.59, 16.77)	38.6 (27.15, 51.54)	22.7 (13.79, 35.10)
You do not mind people asking about your artificial limb	44	9.1 (3.95, 19.55)	6.8 (2.59, 16.77)	6.8 (2.59, 16.77)	40.9 (29.18, 53.78)	36.4 (25.16, 49.27)
Having an artificial limb makes you more dependent on others than you'd like to be	45	13.3 (6.82, 24.43)	22.2 (13.47, 34.40)	17.8 (10.05, 29.50)	22.2 (13.47, 34.40)	24.4 (15.24, 36.79)
If you work, an artificial limb interferes with the ability to do your work	32	15.6 (7.51, 29.69)	31.3 (19.24, 46.44)	9.4 (3.57, 22.41)	31.3 (19.24, 46.44)	12.5 (5.46, 26.10)
If you work, having an artificial limb limits the kind of work that you can do	32	6.3 (1.90, 18.67)	12.5 (5.46, 26.10)	6.3 (1.90, 18.67)	43.8 (29.85, 58.71)	31.3 (19.24, 46.44)
If you work, having an artificial limb limits the amount of work that you can do	32	6.3 (1.90, 18.67)	28.1 (16.74, 43.23)	3.1 (0.57, 15.27)	40.6 (27.11, 55.72)	21.9 (11.95, 36.61)

Despite the challenge of major limb amputation, we estimated the majority (91.0 percent of lower limb and 80.0 percent of upper limb only) of veterans considered (agreed or strongly agreed) their “life is full.” In fact, we were very inspired by the high spirit of veterans we visited. For example, even though he has a right above knee amputation and left below knee amputation, one young veteran (Study ID: D10001071) continues to participate in activities he enjoyed before he was injured including mountain climbing, hunting, skydiving, and water sports. He attends a local university and has a goal of becoming an engineer. To “give back,” he is an advocate and spokesman for various community and VA programs. This veteran is able to live alone, continues to maintain his independence, and has a close relationship with his father.

Another veteran (Study ID: D10000709) we visited shared his experiences with suffering injuries on his first day of OIF combat in 2003. His injuries included a right above knee amputation, left leg fracture, right forearm fracture, partial amputation of his right index finger, burn injuries, and nerve damage. He feels like he has helped the DoD and VA grow their prosthetic programs by being an early-war amputee and demonstrating a need

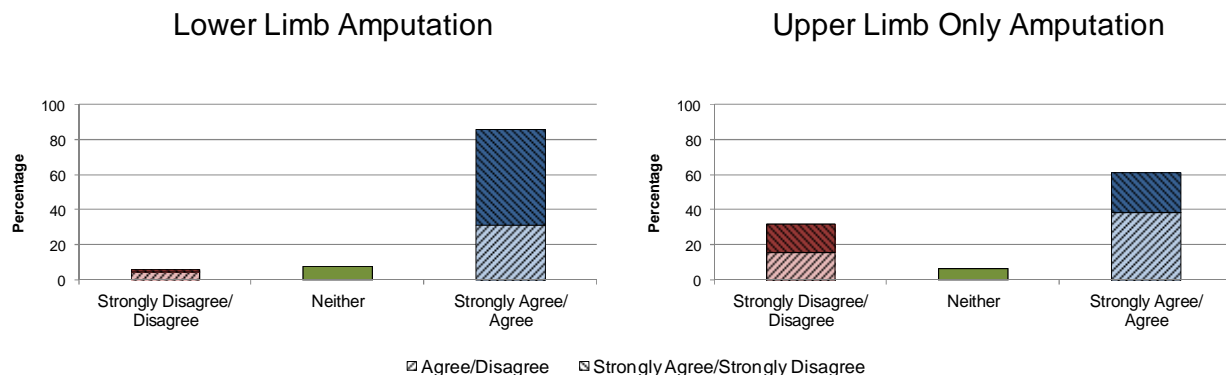
to recover and reintegrate into civilian life. He has been working with a prosthetic company on innovations in prosthetic limbs and was scheduled to try out a new limb that will allow an above knee amputation amputee to walk up and down stairs with a normal gait pattern. Using the VA GI Bill, he completed his bachelor and master degrees. He now tours the country as a motivational speaker.

Exhibit 25. “Although You Have an Artificial Limb, Your Life is Full.”

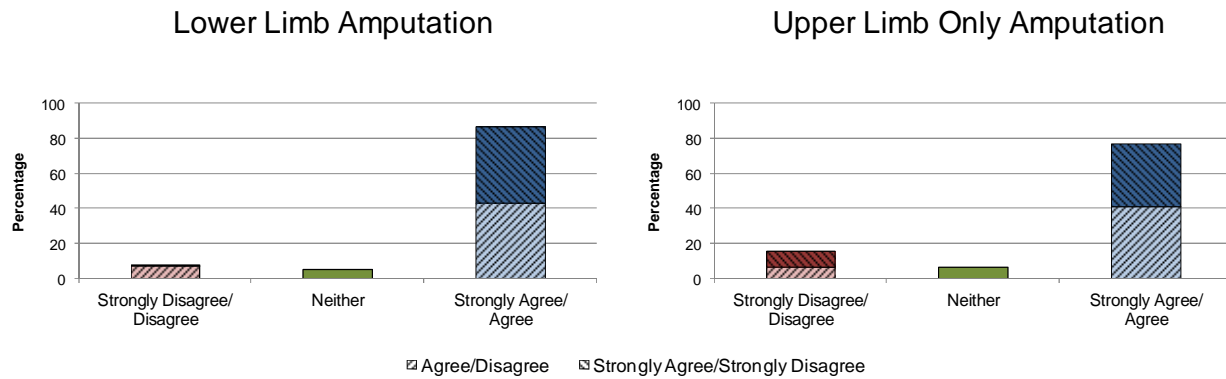
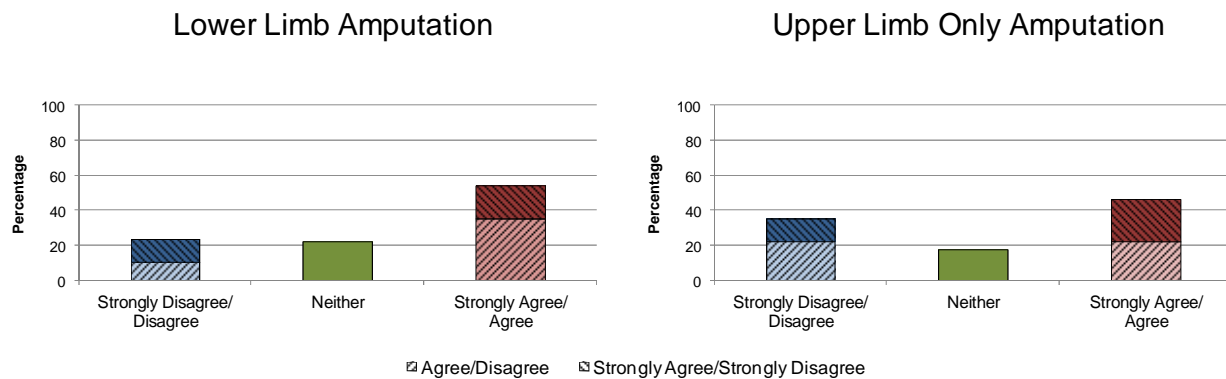


We estimated that about 55 percent of veterans with lower extremity amputations strongly agreed that they had “gotten use to wearing an artificial limb.” This is statistically significantly ($p < 0.05$) higher than the 22.7 percent of strongly agreed by the upper extremity only amputees. Over 77 percent of both groups agreed or strongly agreed with “You do not mind people asking about your artificial limb.” Nearly half of both groups (lower limbs: 54.2 percent, upper limbs only: 46.6 percent) agreed or strongly agreed with “Having an artificial limb makes you more dependent on others than you'd like to be.”

Exhibit 26. “You Have Gotten Used to Wearing an Artificial Limb.”



One veteran (Study ID: 100301798), told us “I forget I have it on” when we asked if he had gotten used to wearing a prostheses. He told us that you live with what you are given and “failure is not an option.” He had his own small business and was very active in local and federal government activities, including supporting other wounded warriors.

Exhibit 27. “You do not Mind People Asking about Your Artificial Limb.”**Exhibit 28. “Having an Artificial Limb Makes You More Dependent on Others than You’d Like to Be.”**

Veterans reported that their prostheses interfered with both their current ability to work as well as potential work. Among those veterans who were working, we estimated that 31.5 percent of the lower limb and 43.8 percent of the upper limb only amputees agreed or strongly agreed with the statement “an artificial limb interferes with the ability to do your work.” Over 70 percent of them agreed or strongly agreed that “having an artificial limb limits the kind of work that you can do,” and more than 60 percent of them agreed or strongly agreed “having an artificial limb limits the amount of work that you can do.”

Exhibit 29. “If You Work, an Artificial Limb Interferes with the Ability to do Your Work.”

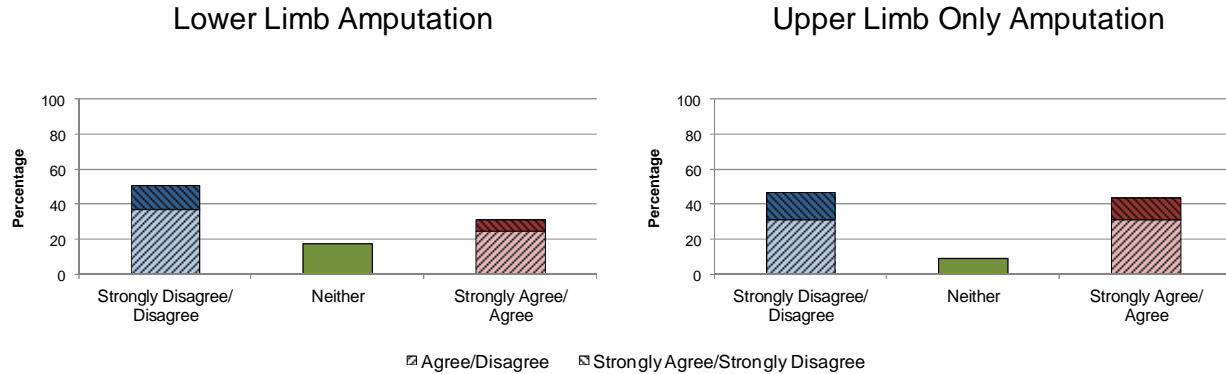


Exhibit 30. “If You Work, Having an Artificial Limb Limits the Kind of Work that You Can Do.”

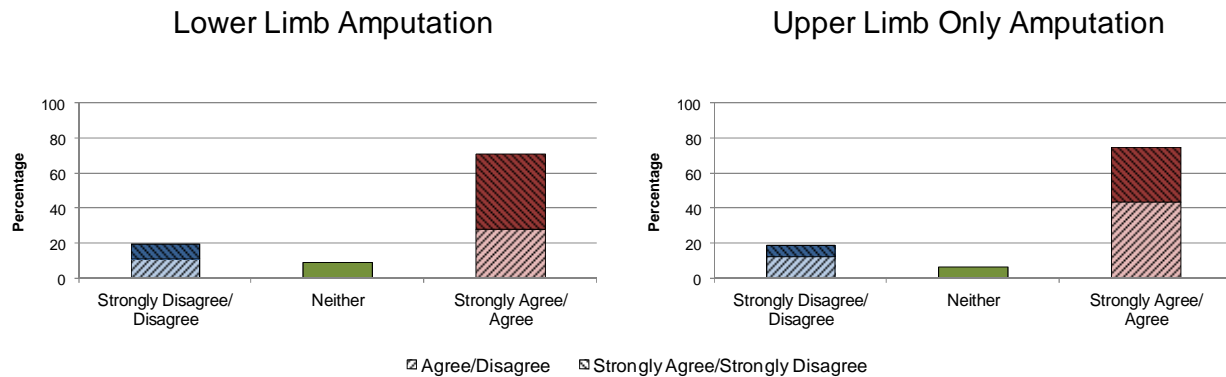
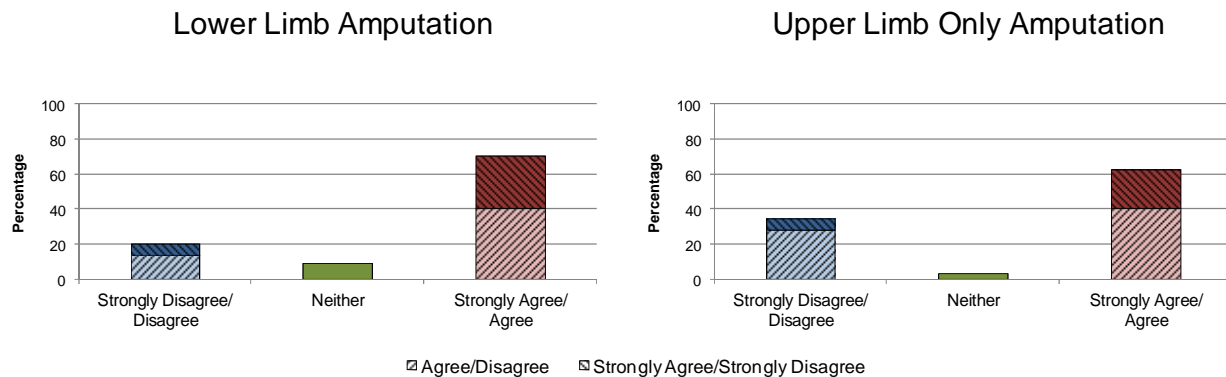


Exhibit 31. “If You Work, Having an Artificial Limb Limits the Amount of Work that You Can Do.”



Two veterans (Study IDs: 300032556 and 100315452) told us that they changed their career choices because of the amputations. They would have chosen careers in law enforcement after leaving the military. One realized that having a below knee amputation

would limit his ability to perform that job, so he has chosen to return to school and study engineering. The other veteran understands that his amputation limits the time he can spend on his feet and that if he developed a skin breakdown because of the physical nature of a law enforcement career, he would not be able to wear his prosthesis or perform that job. He is now a successful businessman.

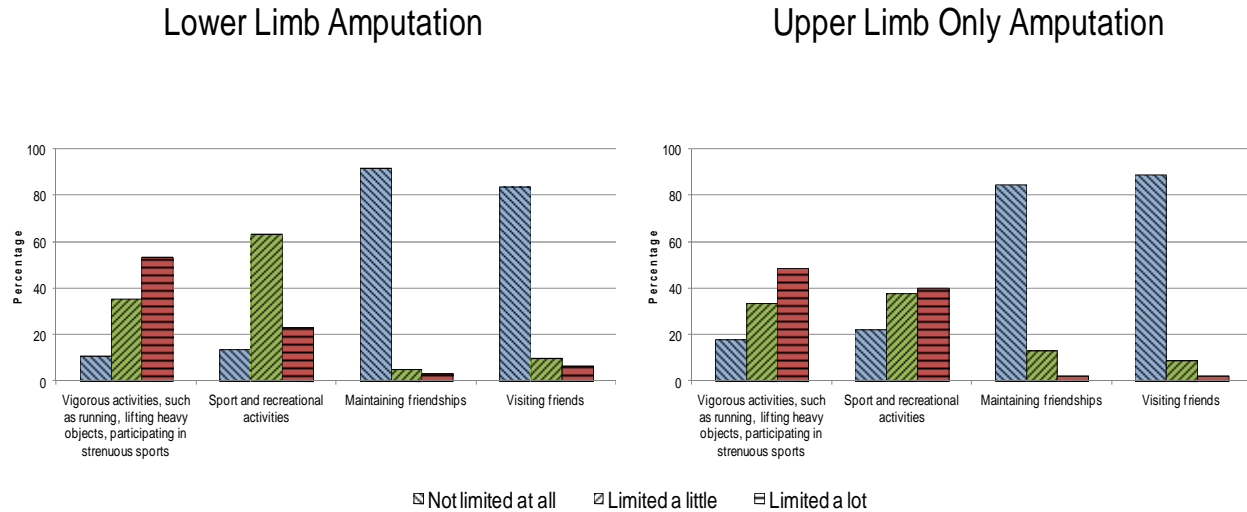
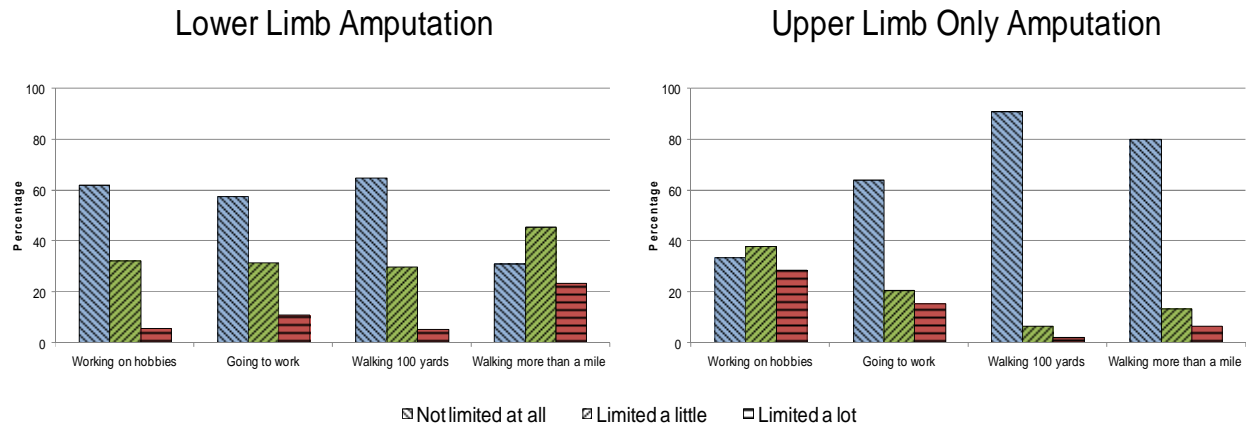
One veteran (Study ID: 100315877) has put off his education and career because of the numerous complications with his residual limb. He has undergone two revision surgeries, which has made fitting a limb difficult, and has experienced chronic pain since the first revision surgery.

Limitations in Activities by OEF/OIF/OND Veterans with Amputations

Exhibit 32 lists estimates of “having an artificial limb limit them in” selected activities that were self-reported by OEF/OIF/OND veterans with one or two limb amputations (in the order the questions were asked), separately by veterans with lower extremity amputations and with upper extremity amputations only. Exhibits 34–35 chart each of the eight activities.

Exhibit 32. Limitations in Activities of OEF/OIF/OND Veterans with Amputations.

Limitation in Activity	# of Participants	Estimates (95% C.I.) of OEF/OIF/OND Veterans (%)		
		Not Limited at All	Limited a Little	Limited a Lot
Lower Limb Amputation				
Vigorous activities, such as running, lifting heavy objects, participating in strenuous sports	59	11.0 (4.01, 26.61)	35.5 (22.05, 51.71)	53.5 (37.66, 68.74)
Sport and recreational activities	59	13.6 (5.90, 28.16)	63.2 (47.13, 76.78)	23.2 (12.63, 38.81)
Maintaining friendships	59	91.6 (77.39, 97.21)	5.2 (1.40, 17.27)	3.2 (0.44, 20.06)
Visiting friends	59	83.9 (68.20, 92.66)	9.7 (3.68, 23.15)	6.4 (1.59, 22.61)
Working on hobbies	59	61.9 (45.61, 75.94)	32.2 (19.20, 48.80)	5.8 (1.80, 17.25)
Going to work	48	57.5 (39.60, 73.58)	31.7 (17.92, 49.65)	10.8 (3.62, 28.22)
Walking 100 yards	58	65.0 (48.24, 78.66)	29.8 (17.09, 46.75)	5.2 (1.41, 17.38)
Walking more than a mile	58	31.2 (18.20, 47.92)	45.5 (30.27, 61.52)	23.4 (12.72, 39.04)
Upper Limb Only Amputation				
Vigorous activities, such as running, lifting heavy objects, participating in strenuous sports	45	17.8 (10.05, 29.50)	33.3 (22.64, 46.06)	48.9 (36.60, 61.31)
Sport and recreational activities	45	22.2 (13.47, 34.40)	37.8 (26.51, 50.54)	40.0 (28.48, 52.74)
Maintaining friendships	45	84.4 (73.01, 91.59)	13.3 (6.82, 24.43)	2.2 (0.41, 11.19)
Visiting friends	45	88.9 (78.18, 94.70)	8.9 (3.86, 19.15)	2.2 (0.41, 11.19)
Working on hobbies	45	33.3 (22.64, 46.06)	37.8 (26.51, 50.54)	28.9 (18.88, 41.49)
Going to work	39	64.1 (50.37, 75.86)	20.5 (11.65, 33.56)	15.4 (7.90, 27.82)
Walking 100 yards	45	91.1 (80.85, 96.14)	6.7 (2.53, 16.42)	2.2 (0.41, 11.19)
Walking more than a mile	45	80.0 (68.03, 88.26)	13.3 (6.82, 24.43)	6.7 (2.53, 16.42)

Exhibit 33. Limitations in Activities of OEF/OIF/OND Veterans with Amputations.**Exhibit 34. Limitations in activities of OEF/OIF/OND Veterans with Amputations.**

Based on self-reports, we estimated that veterans with lower limb or upper limb amputations had similar distribution in degrees of limitation to “vigorous activities, such as running, lifting heavy objects, participating in strenuous sports.” However, in terms of “sport and recreational activities,” we estimated that 63.2 (95 percent CI: 47.1–76.8) percent of lower limb amputees had a limitation of “limited a little” and 23.2 (95 percent CI: 12.6–38.8) percent of “limited a lot.” These were in contrast to 37.8 percent (95 percent CI: 26.5–50.5) of “limited a little” and 40.0 (95 percent CI: 28.5–52.7) percent of “limited a lot” among those with upper limb only amputations. Most (estimated 83.9 percent or more) of the amputees responded “not limited at all” to “maintaining friendships” or “visiting friends.”

Many veterans expressed limitations based on pain tolerance and complications, such as skin breakdown. One veteran (Study ID: D10001273) specifically stated that his prosthesis does not limit him, the pain does. A particularly active veteran

(Study ID: 100026088) swims and bikes but can no longer use his running leg because of residual pain. Some veterans' limit the time spent wearing the prosthesis because of pain from wearing the prosthesis and choose to only wear it in public. The traumatic nature of these injuries can lead to additional complications. A veteran (Study ID: 100300247) who initially had a Symes²⁵ amputation was able to run a marathon but later developed complications which resulted in several surgeries on his residual limb, that is now an above the knee amputation. He continues to have pain, skin breakdown, and infections that have made fitting his prosthesis difficult. He told us that now he would simply like to be able to mow his own yard again.

We estimated that over 60 (95 percent CI: 45.6–75.9) percent of lower limb amputees were “not limited at all” to “working on hobbies,” in contrast to 33.3 (95 percent CI: 22.6–46.1) percent of the upper limb only amputees. A significantly higher percentage of upper limb only amputees reported they were “limited a lot” (5.8 percent of lower limb amputees versus 28.9 percent of upper limb only amputees) in “working on hobbies.” Among those veterans who were working, the distributions in degrees of limitation for “going to work” were similar between lower limb and upper limb only amputees.

For “walking 100 yards,” a significantly higher percentage of upper limb only amputees were “not limited at all” (91.1 percent) or “limited a little” (6.7 percent) than the percentage of those with lower limb amputees who were “not limited at all” (65.0 percent) or “limited a little” (29.8 percent).

As expected, significantly more lower limb amputees had difficulty with “walking more than a mile” than the upper limb only amputees. We estimated that 31.2 (95 percent CI: 18.2–47.9) percent of lower limb amputees were “not limited at all” for the activity, 45.5 (95 percent CI: 30.3–61.5) percent were “limited a little,” and 23.4 (95 percent CI: 12.7–39.0) percent were “limited a lot.” In contrast, 80.0 (95 percent CI: 68.0–88.3) percent of the upper limb only amputees were “not limited at all,” 13.3 (95 percent CI: 6.8–24.4) percent were “limited a little,” and 6.7 (95 percent CI: 2.5–16.4) percent were “limited a lot” for “walking more than a mile.”

One veteran (Study ID: D10001081) expressed that wearing a prosthesis takes a lot of energy and makes it difficult to spend time with his kids. Another veteran (Study ID: 100361808) tries to maintain an active lifestyle but has difficulty walking down stairs and driving due to the prosthesis. Veterans with lower extremity amputations also experienced limitations when a prosthesis breaks unexpectedly. One veteran (Study ID: D10001071) whose prosthetic leg broke was unable to maintain his normal level of activity, such as taking out the trash and moving around his home.

²⁵ The Symes amputation is an amputation at the ankle with removal of the ends of the tibia and fibula (lower leg bones).

Prosthesis Satisfaction by OEF/OIF/OND Veterans with Amputations

Exhibit 35 gives estimates of veterans' satisfaction with each of these different aspects of the artificial limb: appearance, reliability, fit, and overall satisfaction. Consistently, more of the lower limb amputees were satisfied with each specific aspect of the artificial limb we surveyed. Veterans ranked satisfaction with specific aspects from highest to lowest in the order of appearance, reliability, and fit.

Exhibit 35. Prosthetic Satisfaction of OEF/OIF/OND Veterans with Amputations.

Prosthetic Satisfaction	Lower Limb Amputation		Upper Limb Only Amputation	
	# of Participants	Estimates (95% C.I.) of OEF/OIF/OND Veterans (%)	# of Participants	Estimates (95% C.I.) of OEF/OIF/OND Veterans (%)
Appearance	58	98.0 (94.81, 99.27)	46	84.8 (73.55, 91.78)
Reliability	58	90.9 (77.01, 96.75)	45	71.1 (58.51, 81.12)
Fit	58	88.3 (75.53, 94.84)	45	66.7 (53.94, 77.36)
Overall satisfaction	58	90.9 (77.01, 96.75)	46	69.6 (57.06, 79.73)

We estimated that 98 percent of the lower limb amputees were satisfied with the appearance of their artificial limbs, which is statistically significantly higher than the 84.8 percent of those upper limb only amputees. Among lower limb amputees, 90.9 (95 percent CI: 77.0–96.8) percent were satisfied with reliability of the artificial limb and 88.3 (95 percent CI: 75.5–94.8) percent with fit, while for upper limb only amputees, the corresponding percentages were 71.1 (95 percent CI: 58.5–81.1) and 66.7 (95 percent CI: 53.9–77.4), respectively. Veterans overall satisfaction with the artificial limb was 90.9 (95 percent CI: 77.0–96.8) percent for those with lower limb amputations, higher than the 69.6 (95 percent CI: 57.1–79.7) percent satisfaction given by those with upper limb amputations.

Many veterans with lower limb amputations felt their prosthetic was reliable enough to meet their activity needs and were satisfied with the appearance of the prosthetic limb. A veteran (Study ID: D10000109) expressed that his most recent limb makes him feel like he still has a leg. He is able to walk, run, cycle, and ski with his prosthetic limb. A veteran (Study ID: 100244519) was pleased when the VA provided a foam covering to make his prosthesis look as natural as possible so that he would not be vulnerable to those who might take advantage of an amputee. Another veteran (Study ID: 100048355) received a cover for his prosthesis in order to perform martial arts and resume his normal activity level.

Veterans reported that their upper extremity prosthetic limbs would break often and require frequent repairs. In one case, a veteran (Study ID: D10000906) described requiring over 100 repairs, adjustments, or replacements of his prosthesis since his injury in August 2007. Other veterans reported requiring multiple upper prosthetic limbs to ensure that they would have at least one functional artificial limb. We found that more of those with upper limb prosthesis either had problems with or were not able to be fitted

with a functional prosthesis and ended up not using a prosthesis or using just a cosmetic prosthesis.

Disability/Symptoms by OEF/OIF/OND Veterans with Upper Limb Only Amputation

Exhibit 36 shows estimated percentages of OEF/OIF/OND veterans with disability/symptoms for each category of the QuickDASH. Exhibits 37–43 depict estimates for each specific item.

These tables and figures reveal that certain daily activities are easier than others. Veterans reported “no difficulty” or “mild difficulty” with carrying a shopping bag or briefcase in 77.8 percent of the time while only 35.5 and 34.9 percent, respectively, felt the same way about using a knife to cut food or participating in recreational activities which exert force through the arm, shoulder or hand. Most veterans have adapted their overall routine to minimize challenging activities as most (73.4 and 71.1 percent) report no or mild difficulty with regular daily activities or normal social activities.

Veterans also have adapted to living with pain. Of the veterans with upper limb only amputations, 53.4 percent have moderate to extreme pain (46.6 percent report no or mild pain). However, 35.6 percent report moderate to extreme sleep disturbance, 28.9 percent moderate or worse limitation in normal social activities, and 26.6 percent moderate or worse limitation in regular daily activities.

Exhibit 36. Disability/Symptoms and Activity Limitation of OEF/OIF/OND Veterans with Upper Limb Amputations Only.¹

QuickDASH Questionnaire	# of Participants	Estimates (95% C.I.) of OEF/OIF/OND Veterans (%)			
Disability/Symptoms		Unable	Severe Difficulty	Moderate Difficulty	No Difficulty
Can you open a tight or new jar?	45	13.3 (6.80, 24.51)	11.1 (5.28, 21.90)	28.9 (18.83, 41.56)	22.2 (13.43, 34.47)
Can you do heavy household chores (e.g. wash walls, floors)?	45	17.8 (10.02, 29.58)	11.1 (5.28, 21.90)	17.8 (10.02, 29.58)	33.3 (22.59, 46.14)
Can you carry a shopping bag or briefcase?	45	4.4 (1.34, 13.75)	4.4 (1.34, 13.75)	13.3 (6.80, 24.51)	55.6 (42.86, 67.57)
Can you wash your back?	45	28.9 (18.83, 41.56)	6.7 (2.52, 16.50)	8.9 (3.84, 19.23)	35.6 (24.51, 48.39)
Can you use a knife to cut food?	45	20.0 (11.70, 32.04)	8.9 (3.84, 19.23)	35.6 (24.51, 48.39)	24.4 (15.20, 36.87)
Can you participate in recreational activities in which you take some force or impact through your arm, shoulder, or hand (e.g. golf, hammering, tennis, etc.)?	43	27.9 (17.83, 40.85)	16.3 (8.78, 28.21)	20.9 (12.27, 33.38)	18.6 (10.50, 30.82)
During the past week, to what extent has your arm, shoulder, or hand problem interfered with your normal social activities with family, friends, neighbors, or groups?	45	Extremely	Quite a Bit	Moderately	Slightly
			11.1 (5.28, 21.90)	17.8 (10.02, 29.58)	17.8 (10.02, 29.58)
During the past week, were you limited in your work or other regular daily activities as a result of your arm, shoulder, or hand problem?	45	Unable	Very Limited	Moderately Limited	Slightly Limited
			8.9 (3.84, 19.23)	17.8 (10.02, 29.58)	26.7 (17.00, 39.23)
Please rate the severity of the symptoms in the last week:					
Arm, shoulder, or hand pain.	45	Extreme	Severe	Moderate	Mild
		4.4 (1.34, 13.75)	17.8 (10.02, 29.58)	31.1 (20.70, 43.87)	33.3 (22.59, 46.14)
Tingling (pins and needles) in your arm, shoulder, or hand.	45	2.2 (0.40, 11.28)	20.0 (11.70, 32.04)	35.6 (24.51, 48.39)	33.3 (22.59, 46.14)
		So Much Difficulty That I Can't Sleep	Severe Difficulty	Moderate Difficulty	Mild Difficulty
		4.4 (1.34, 13.75)	6.7 (2.52, 16.50)	24.4 (15.20, 36.87)	20.0 (11.70, 32.04)
During the past week, how much difficulty have you had sleeping because of the pain in your arm, shoulder, or hand?	45	4.4 (1.34, 13.75)	6.7 (2.52, 16.50)	24.4 (15.20, 36.87)	20.0 (11.70, 32.04)
Work (including homemaking if that is the main work role)					
		Yes			
Do you work?	22	48.9 (36.53, 61.38)			
		Unable	Severe Difficulty	Moderate Difficulty	Mild Difficulty
Do you have difficulty:					
Using your usual technique for your work?	27		3.7 (0.67, 17.90)	11.1 (4.22, 26.18)	37.0 (22.98, 53.69)
Doing your usual work because of arm, shoulder, or hand pain?	27		3.7 (0.67, 17.90)	14.8 (6.47, 30.43)	22.2 (11.50, 38.59)
Doing your work as well as you would like?	27	3.7 (0.67, 17.90)	14.8 (6.47, 30.43)	14.8 (6.47, 30.43)	40.7 (26.08, 57.25)
Spending your usual amount of time doing your work?	27	3.7 (0.67, 17.90)	7.4 (2.24, 21.85)	11.1 (4.22, 26.18)	33.3 (19.97, 50.05)
High Performance Sport/Music					
		Unable	Severe Difficulty	Moderate Difficulty	Mild Difficulty
Do you have difficulty:					
Using your usual technique for playing your instrument or sport?	22		4.5 (0.83, 21.39)	27.3 (14.23, 45.87)	50.0 (32.61, 67.39)
Playing your musical instrument or sport because of arm, shoulder or hand pain?	22			27.3 (14.23, 45.87)	36.4 (21.18, 54.86)
Playing your musical instrument or sport as well as you would	21		14.3 (5.45, 32.52)	23.8 (11.55, 42.78)	52.4 (34.33, 69.83)
Spending your usual amount of time practicing or playing your instrument or sport?	22			31.8 (17.63, 50.43)	45.5 (28.67, 63.34)

¹ Responses refer to experiences in the past week. If not performed in the past week, the Veteran made the best estimate of which response would be most accurate.

Exhibit 37. Disability/Symptoms of OEF/OIF/OND Veterans with Upper Limb Amputations Only.

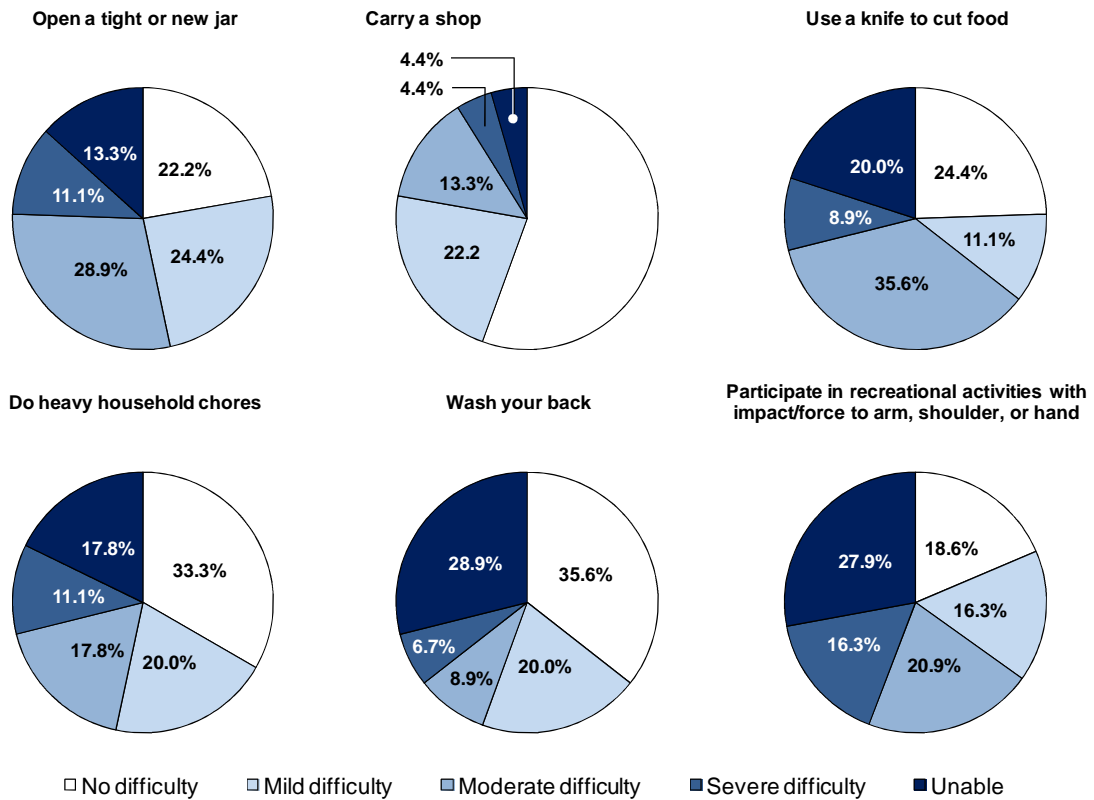


Exhibit 38. “During the Past Week, to What Extent has Your Arm, Shoulder, or Hand Problem Interfered with Your Normal Social Activities with Family, Friends, Neighbors, or Groups?”

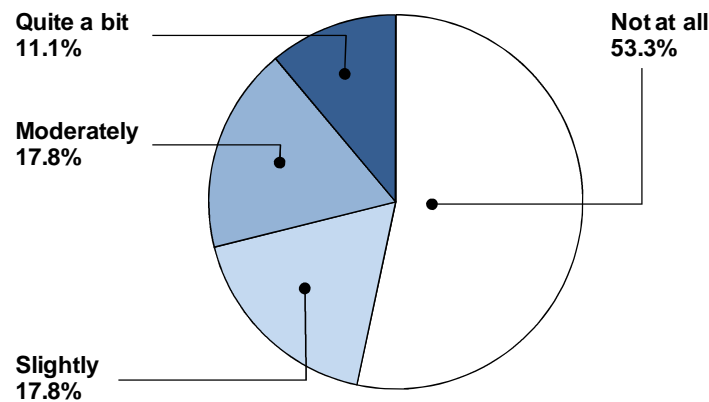


Exhibit 39. “During the Past Week, Were You Limited in Your Work or Other Regular Daily Activities as a Result of Your Arm, Shoulder, or Hand Problem?”

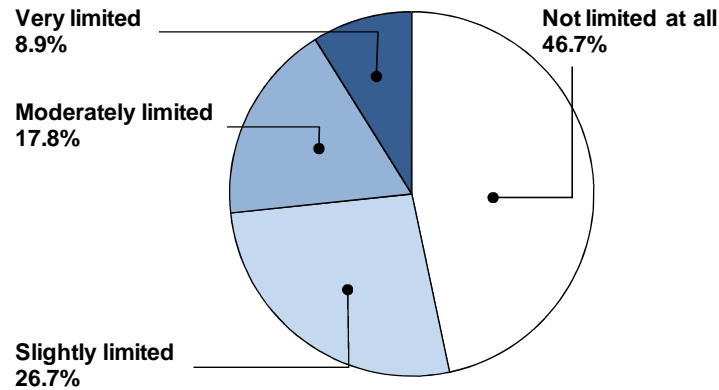


Exhibit 40. “Please Rate the Severity of the Following Symptoms in the Last Week.”

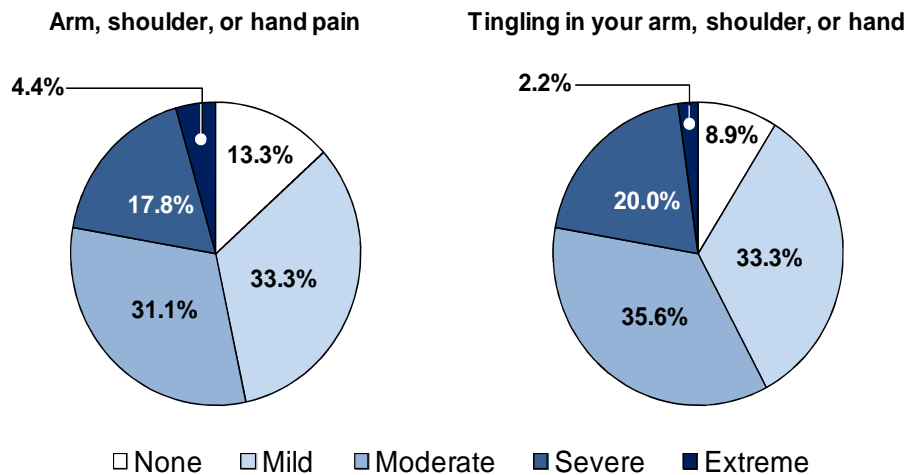


Exhibit 41. “During the Past Week, how Much Difficulty have You had Sleeping Because of the Pain in Your Arm, Shoulder, or Hand?”

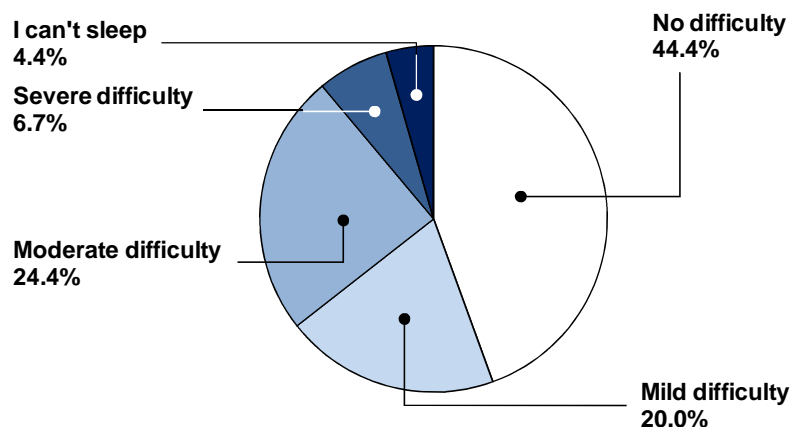
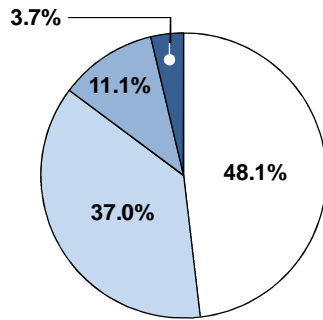
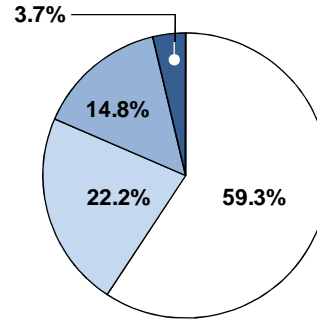


Exhibit 42. “Impact of Your Arm, Shoulder, or Hand Problem on Your Ability to Work (Including Homemaking if that is the Main Work Role).”

Using usual technique for your work

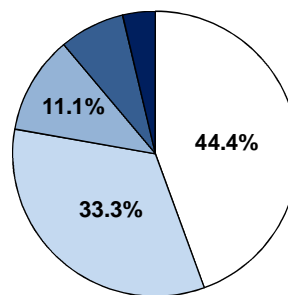
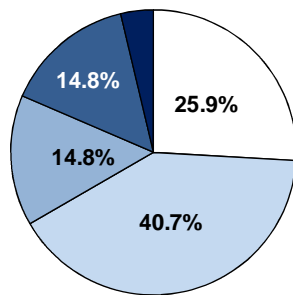


Doing your usual work because of pain



S

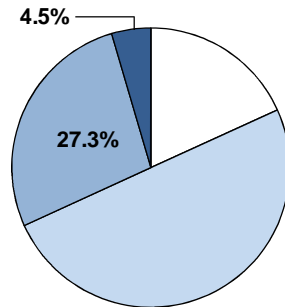
k



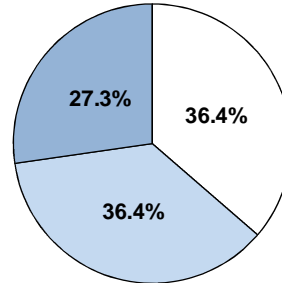
□ No difficulty □ Mild difficulty □ Moderate difficulty □ Severe difficulty □ Unable

Exhibit 43. “Impact of Your Arm, Shoulder, or Hand Problem on Playing Your Musical Instrument or Sport or Both.”

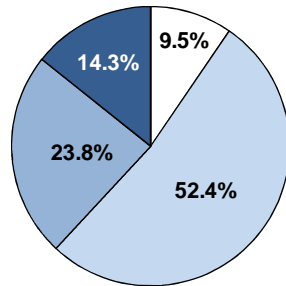
Using usual technique for playing your instrument/sport



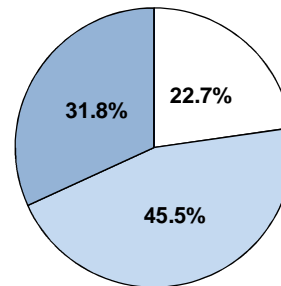
Playing instrument/sport because of pain



Playing your instrument/sport as well as you'd like



Spending usual amount of time practicing/playing your instrument/sport



□ No difficulty □ Mild difficulty □ Moderate difficulty ■ Severe difficulty

The QuickDASH is a measure of upper extremity functional loss. QuickDASH scores range from 0 to 100 with 0 indicating no loss of function and 100 indicating severe loss of function. For normal healthy adults, the average QuickDASH score is 1.8 for disability/symptom.²⁶ For OEF/OIF/OND veterans with upper extremity amputations only (Exhibit 44), the mean QuickDASH score was 36.6 (95 percent CI: 31.60, 41.57), with 25th percentile of 22.9 (95 percent CI: 14.34, 31.49) and 75th percentile of 51.3 (95 percent CI: 44.35, 58.31). This mean score is similar to the general public with unilateral upper extremity amputations who scored 39, faring better than the general public with bilateral upper extremity amputations who scored 68.²⁷

Exhibit 44. Estimated QuickDASH¹ Scores of OEF/OIF/OND Veterans with Upper Limb Amputations Only.

	# of Participants	Estimated Score (95% C.I.) of OEF/OIF/OND Veterans
Disability/Symptom	45	36.6 (31.60, 41.57)
Work	27	22.2 (15.57, 28.87)
Sport/Musical Instrument	21	28.9 (22.94, 34.80)

¹ DASH stands for "Disabilities of the Arm, Shoulder and Hand"

The other two subscales of the QuickDASH are for working and for sport/musical instrument. Among those who worked, the subscale mean score was 22.2 (95 percent CI: 15.57, 28.87). For those who played sports/musical instruments, the subscale mean score was 28.9 (95 percent CI: 22.94, 34.80).

²⁶ Clarke MG, Schroder DT, Solomon, et al., *Normal Shoulder Outcome Score Values in the Young, Active Adult*, Journal of Shoulder Elbow Surgery (2009) May–June; 18 (3), p. 424– 428).

²⁷ Davidson J, *A Comparison of upper limb amputees and patients with upper limb injuries using the Disability of the Arm, Shoulder and Hand*, Disability and Rehabilitation 2004; 26:917–923.

Timed Up and Go Evaluation Results for OEF/OIF/OND Veterans with Lower Limb Amputation

The mean time of completing the Timed Up and Go test by OEF/OIF/OND veterans with lower limb amputation is 10.5 seconds, with a 95 percent confidence interval of 8.5–12.4 seconds (Exhibit 45). To put this number in perspective, other studies have found that for young healthy individuals in their 20s, the mean test time is 7.36 seconds²⁸ whereas for older healthy individuals in their 70s, the mean test time is 8.74 seconds.²⁹ In studies using adults who were 60 years of age or older with one lower limb amputation, the Timed Up and Go mean test scores ranged from 24 to 28 seconds.³⁰ Our veterans did better than this group.

A time of 13.5 seconds or greater indicates a higher risk of falls for adults living in the community.³¹ We estimated 8.5 percent of the veteran population with lower limb amputations had a time of 13.5 seconds or more.

Exhibit 45. Time to Complete the Timed Up and Go Test by OEF/OIF/OND Veterans with Lower Limb Amputations.

	Estimated Time (seconds)	95% Confidence Interval
Mean	10.5	(8.52, 12.39)
Median	8.8	(7.92, 9.69)

²⁸ Wall JC, Bell C, Campbell S, Davis J. *The timed get-up-and-go test revisited: Measurement of the component tasks*. Journal of Rehabilitation Research and Development Vol. 37(1), Jan/Feb 2000, p.109–14.

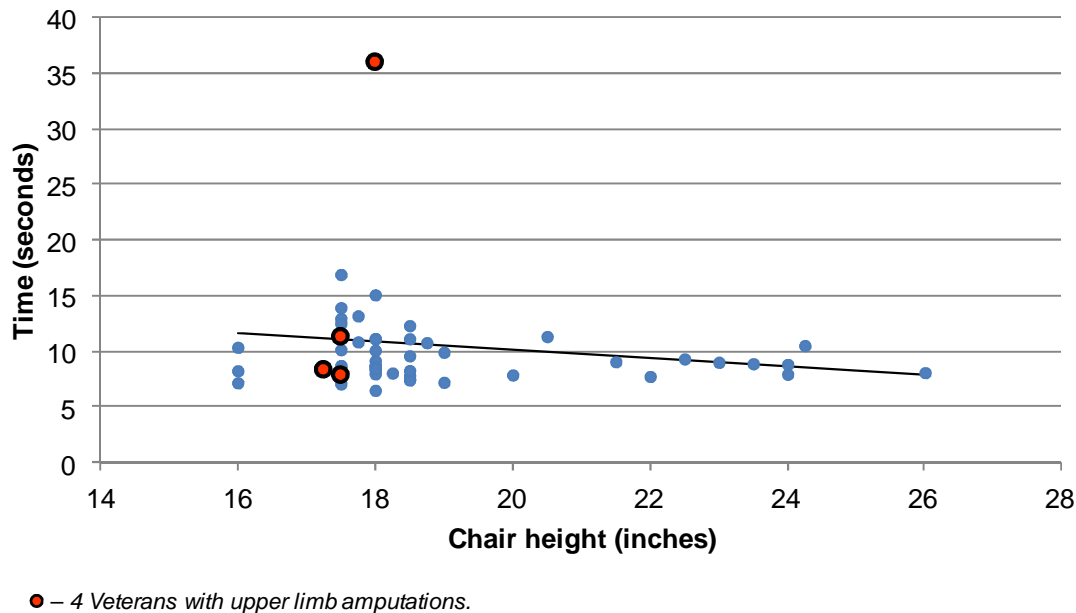
²⁹ Ibid.

³⁰ Schoppen T, Boonstra A, Groothoff JW, de Vries J, Göeken LN, Eisma WH. *The Timed "up and go" test: reliability and validity in persons with unilateral lower limb amputation*. Arch Phys Med Rehabil. 1999 Jul;80(7):825–8.

³¹ Shumway-Cook A, Brauer S, Wollacott M. *Predicting the Probability for Falls in Community-Dwelling Older Adults Using the Timed Up & Go Test*. Physical Therapy September 2000 vol. 80(9), p. 896–903.

Exhibit 46 plots the individual average time for completing the test and the height of the chair used by the 53 participants. It shows that the time for completing the test tends to decrease as the chair height increased. Four participants had one upper limb and one lower limb amputations. One of the four had the longest time for completing the test, more than twice the time of any other participant.

Exhibit 46. Completion Time (of Timed Up and Go test) by Chair Height for OEF/OIF/OND Veterans with Lower Limb Amputations.



This veteran (Study ID: D10001094) with the longest time, had two major amputations involving the right side of his body (upper and lower limb); additionally he had severe injuries affecting the left side of his body including the loss of his thumb that made gripping the walker difficult and severe soft tissue injury to his thigh muscles. He had a traumatic brain injury affecting his balance and cognition. He had loss of function for all four limbs that affected his performance during all phases of the Timed Up and Go test. He used a specialized walker and his artificial limbs for the test.

3. Open Comments by the OEF/OIF/OND Amputee Veterans

We asked the participants to describe the prosthetic care they received. They were specifically asked, “What is the VA doing well and what could the VA improve upon?”

During the course of our interviews, many veterans praised the overall medical care they received at the VA. Specific areas where VA care was positively mentioned by veterans with lower limb amputations were appreciation for the choice and location of their prosthetic vendors, for home and automobile adaptations, and for the work of the OEF/OIF liaisons. Veterans with upper extremity amputations mentioned appointment

waiting times, accessibility of providers, and VA staff listening and respecting veterans' needs.

Comments ranged from brief to detailed in their praise, such as everything is “going good” (Study ID: 100153119) at the VA, and “no complaints whatsoever” (Study ID: 100153119). Another veteran (Study ID: 100381438) said that he could not think of anything the VA in Memphis could do to improve care for him. He said they have the “best prosthetic group in the business” there. (He particularly wanted to mention the excellent care given to him by his prosthetist). “There is a lot of one-on-one care, and they are innovative and always checking on [him]. [He] finds the care there easy to access.”

Veterans also noted areas where the VA should improve. A common complaint by veterans using prosthetic limbs dealt with the facility approval process for obtaining prosthetics through fee-basis and contract care. Many felt that the VA process should be simplified, streamlined, and require fewer visits to get approval for a new prosthetic or major repair. They did not understand why requirements like multiple in-person visits were necessary. As one veteran (Study ID: D10000473) noted, “VA has to approve funding each time. [I] must go to the VA to approve each revision although [the VA] can't make the prosthesis.”

Participants also expressed concerns about the time and reliability of paperwork for processing prosthetics requests, particularly between the VA and outside vendors. When difficulties arose, veterans (Study IDs: D10000517 and 100409123) reported having to act as the liaison between the VA and the vendor. Another veteran (Study ID: D10000737) reported avoiding the VA due to the process, “I would rather get any repairs done on my own and pay for it than to deal with the VA....” Another participant (Study ID: D10000701) said that because this takes so much time and effort, he frequently tries to “patch” things up himself with his prosthetic, so he does not have to go through the tedious process. The one thing he wishes for is that he could receive the prosthetic care he needs without going through such a hassle.

Both upper and lower extremity amputee participants reported utilizing strategies to avoid using VA care such as using other health insurance, participating in research studies, or discontinuing prosthetic use. Some veterans (Study IDs: D20001218 and 200004813) expressed concerns regarding the unavailability of upper extremity prosthetic specialists. One participant (Study ID: D20000154) felt that the staff at the VA are more familiar with leg amputees and do not really understand the unique problems of an upper limb amputee. “On average, two of six VA staff knows what they're talking about with amputees, and sometimes going there is little more than wasting [my] time.” Sometimes he feels like he has to teach the staff about prosthetics and amputees, and this is frustrating to him.

Scheduling amputee clinic appointments could be challenging for the veterans we interviewed. Amputee clinic referrals often originate from a primary care provider. Veterans expressed frustration with their primary care providers' involvement in the process since most primary care providers had little knowledge of prosthetics and issues related to amputees. In addition, lower extremity amputees reported wait times of 2–8 weeks for an appointment with their primary care provider and then another 1–6 weeks for an appointment with the prosthetic clinic depending upon how often the clinic met. Some upper extremity amputees (Study IDs: D10000815 and 100409123) reported waiting as long as 6 months for an appointment. Veterans reported that some VA amputee clinics were held only once a month and rescheduling appointments was difficult because the clinics were fully booked.

Veterans reported that VA appointments take a great deal of time and travel which deters use of the VA. One veteran (Study ID: D10000737) said the long travel times to VA facilities make the multiple visits required for prosthetic approvals and frequent prosthetic repairs more problematic. A different veteran (Study ID: 300043388) reported that the facility closest to him was 10 minutes away, but he would drive 240 miles to go to a facility with a shorter wait time. Another veteran (Study ID: D10000863), who works full-time and is a part-time student, reported that extra visits were difficult given his schedule. One veteran (Study ID: 100315877) stated that the VA did not understand the hardships for younger veterans, such as the difficulty of getting time off from work or school, and arranging childcare in order to attend multiple appointments.

Veterans with lower and upper extremity amputations formed bonds with the prosthetists who fit their first limbs and preferred to stay with the same prosthetist or company after separation from active duty. Some veterans also expressed that they felt these vendors had better access to state of the art technology. Others felt prosthetic expertise was better at the private vendors than at the VA. One veteran (Study ID: D10000710) appreciated that the VA allowed him to see a prosthetist experienced with fitting patients with skin grafts, and he felt he was getting care specific to his needs.

A veteran (Study ID: 200004813) with expertise in prosthetics expressed that although the VA tries very hard to meet veteran needs, the VA has not asked the appropriate questions about what veterans need and want from prosthetic upper limbs. He feels that the VA needs to focus on function rather than on advanced technologies, such as neural interfaces. He recommended that the VA should get all upper limb amputees together and record what they say to help decide the direction the VA should go with upper limb amputee studies.

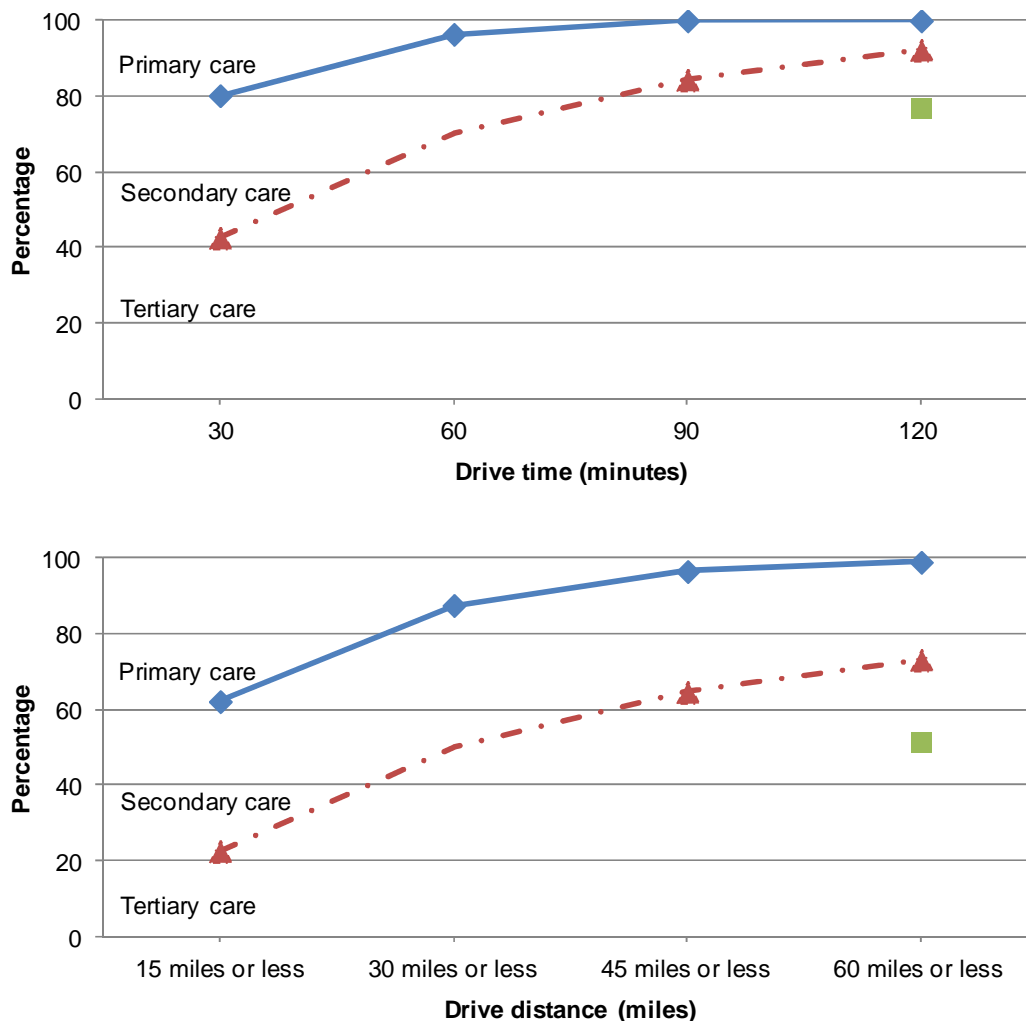
During our veteran interviews, two veterans (Study IDs: 300005917 and D10000421) discussed problems they were having getting information from their VA medical center. We contacted their corresponding medical centers about the issues. The medical centers responded differently. Castle Point Campus of the VA Hudson Valley Health Care System responded immediately to address the veteran's concern about his broken

prosthesis. We contacted the other medical center twice on behalf of a veteran after he told us during the in-person visit that he had made multiple requests about his prosthetic clothing allowance from previous years but had not received a response. On December 14, 2011, the OIG again contacted the Director's office but did not get a response. The day after we briefed VHA officials, the medical center contacted the veteran about his request.

4. Veteran Amputees' Travel Time and Distance to VA Care

Exhibit 47 depicts driving time and distance to VA primary, secondary, and tertiary care as of September 2010. To receive fee-basis care, veterans have to go to a VHA facility for approval. Most (80 percent) OEF/OIF/OND veterans with traumatic major amputations lived within 30 minutes driving to the closest VA primary care site, 96.3 percent within an hour drive. In terms of drive distance, 62 percent of the veterans lived within 15 miles to the closest VA primary care site, 87 percent within 30 miles, and 96 percent within 45 miles.

Exhibit 47. Travel Time and Distance to VA Care by OEF/OIF/OND Veterans with Traumatic Major Amputations.



Conclusions

Based on the integrated data from both DoD and VA, this is the first ever study to characterize the population of OEF/OIF/OND 1,288 servicemembers with major traumatic amputations. We followed them for their experience transitioning to and using VA health care and benefits through September 30, 2011. As of September 30, 2011, 838 (65 percent) of the 1,288 in the DoD OEF/OIF/OND amputee population were discharged from active military service (veterans) and 450 remained in active duty. Active duty included servicemembers who had returned to duty as well as those undergoing rehabilitation at military facilities. We compared characteristics and disease burdens of OEF/OIF/OND servicemembers discharged from military service with those remaining on active duty with traumatic major limb amputations in this population.

For the veterans in the population, we compared their disease burden after discharge with those before their discharge. We conducted in-person visits for a statistically representative sample of veterans with lower limb amputations and telephone interviews for all upper extremity only amputees who agreed to participate to assess their psychosocial adjustment, physical abilities, and prosthetic satisfaction.

The majority of the 1,288 OEF/OIF/OND servicemembers with a major traumatic amputation were under 30 years of age, enlisted, male, and served in the Army. There were 59 percent of servicemembers who had one lower limb amputation only, 16 percent had at least one upper limb (but no more than two limbs) amputation, and 2.6 percent had three or more amputations. Overall, OEF/OIF/OND servicemembers who remained on active duty had fewer medical conditions than those discharged (veterans).

Over 97 percent of the 838 OEF/OIF/OND veterans had used VA for care within the first 5 years after discharge. Almost all (98 percent) of the veterans had at least one diagnosed medical condition by DoD or VA after discharge. The most frequent diagnostic categories other than injury and poisoning were mental disorders (77 percent), diseases of the musculoskeletal system and connective tissue (75 percent), and diseases of the nervous system and sense organs (70 percent).

TBI was diagnosed in 35 percent of the veterans by DoD or VA after discharge. For veterans, PTSD diagnoses increased from 31 percent before discharge to 58 percent after discharge. Mood disorders increased from 27 percent before discharge to 35 percent after discharge. Adjustment disorders decreased from 33 percent before discharge to 22 percent after discharge. Substance-related disorders increased from 11 percent before discharge to 15 percent after discharge; alcohol-related disorders increased from 7 percent to 11 percent whereas, drug-related disorders decreased about half of one percent to around 9 percent.

Consistently, veterans with upper limb amputations only reported lower psychosocial adjustment, physical abilities, and prosthetic satisfaction than those with lower limb

amputations. Despite the challenge of major limb amputation, we estimated the majority (91.0 percent of lower limb and 80.0 percent of upper limb only) of veterans considered (agreed or strongly agreed) their “life is full.” About 55 percent of veterans with lower extremity amputation strongly agreed that they had “gotten use to wearing an artificial limb,” which is statistically significantly higher ($p < 0.05$) than the 22.7 percent of strongly agreed by the upper extremity only amputees. We estimated that 98 percent of veterans with lower limb amputations were satisfied with appearance of the artificial limb, statistically significantly higher than the 84.8 percent of upper limb only amputees. Veterans overall satisfaction with the artificial limb was 90.9 (95 percent CI: 77.0–96.8) percent of those with lower limb amputations, higher than the 69.6(95 percent CI: 57.1–79.7) percent given by those with upper limb amputations only.

The mean time of completing the Timed Up and Go test by OEF/OIF/OND veterans with lower limb amputation was 10.5 seconds, with a 95 percent CI of 8.5–12.4 seconds. The veterans in the study population did better than adults who were 60 years of age or older with one lower limb amputation. A time of 13.5 seconds or greater indicates a higher risk of falls for the general adult public. We estimated 8.5 percent of the veteran population with lower limb amputations had a time of 13.5 seconds or more.

For OEF/OIF/OND veterans with upper extremity amputations only, the mean QuickDASH score was 36.6 (95 percent CI: 31.60, 41.57). This score is similar to the general public with unilateral upper extremity amputations who scored 39, faring better than the general public with bilateral upper extremity amputations who scored 68. However, over half of these veterans reported experiencing moderate to severe pain.

In open-ended comments, veterans’ concerns with VA prosthetic services centered on the VA approval process for fee-basis or VA contract care on prosthetic services, prosthetic expertise, and difficulty with accessing VA services. Many veterans felt that the approval process should be simplified and streamlined, particularly those with upper extremity amputations.

Recommendation 2: We recommended that the Under Secretary for Health consider that VHA evaluate the needs of veterans with traumatic upper limb amputations to improve their satisfaction.

Recommendation 3: We recommended that the Under Secretary for Health consider veterans’ concerns with VA approval processes for fee-basis and VA contract care for prosthetic services to meet the needs of veterans with amputations.

ICD-9-CM Codes and Clinic Stop Codes³² Used for Defining Prosthetic Service

Diagnosis Codes

887.x	Arm
897.0–897.7	Legs including bilateral
896.x	Feet

Supplemental codes

V49.64	Wrist Amputation
V49.65	Below Elbow Amputation
V49.66	Above Elbow Amputation
V49.67	Shoulder
V49.74	Ankle Amputation
V49.75	Below Knee Amputation
V49.76	Above Knee Amputation
V49.77	Hip Amputation

Ambiguous Codes

997.60	Unspecified late complication of amputation stump
905.9	Late effect of traumatic amputation
V49.60	Upper Extremity Amputation
V49.70	Lower Extremity Amputation

Procedure Codes

84.04–84.09
84.13–84.19
84.23–84.28
84.41–84.48

Ambiguous Procedure Codes

84.00	Upper limb amputation, NOS
84.10	Lower limb amputation, NOS
84.29	Other reattachment
84.3	Revision of amputation stump
84.40	Implantation or fitting of prosthetic limb device, NOS

Clinic Stop Codes

174	HBPC - Therapist
201	PM&RS
211	PM&RS Amputation Clinic
417	Prosthetics/Orthotics
418	Amputation Clinic
423	Prosthetic and Sensory Aids Service
425	Telephone/Prosthetics/Orthotics
449	Fittings and Adjustments

³² Clinic stop codes are identifiers used in VHA's managerial cost accounting system, the Decision Support System (DSS), to indicate the primary clinical group providing the services. DSS is a congressionally-mandated resource management tool.

Under Secretary for Health Comments

**Department of
Veterans Affairs**

Memorandum

Date: February 16, 2012

From: Under Secretary for Health (10)

Subject: **Healthcare Inspection – Review of Prosthetic Limb Care in VA Facilities**

To: Assistant Inspector General for Healthcare Inspections (54)

1. I have reviewed the draft report and concur with the report's recommendations.
2. The Veterans Health Administration (VHA) is fully committed to providing optimal care and cutting-edge prosthetic technology to Veterans with amputations. VHA fully agrees with the Office of Inspector General (OIG) about the need to address the unique challenges facing these Veterans. While this OIG review focused primarily on Veterans and Servicemembers with traumatic amputations from combat-related injuries, VHA also serves a large population of Veterans with amputations that have resulted from disease processes such as diabetes or peripheral vascular disease (PVD). VHA appreciates that the needs of these two groups differ and has established its Amputation System of Care (ASoC) to meet the needs of all Veterans with limb loss.
3. As noted in the OIG report, the implementation of ASoC began in 2009, and the program is now fully operational with 7 Regional Amputation Centers, 15 Polytrauma/Amputation Network Sites, and 111 Amputation Clinic Teams. Implementation of this program has resulted in an enhanced environment of care and consistency in the delivery of rehabilitation services for Veterans with amputations. The ASoC currently provides specialized expertise in amputation care incorporating the latest practices in medical rehabilitation, rehabilitation therapy, and prosthetic technology with the long-term vision of being a world leader in providing lifelong amputation care.

4. Thank you for the opportunity to review the draft report. Attached is the complete corrective action plan for the report's recommendation. If you have any questions, please contact Linda H. Lutes, Director, Management Review Service (10A4A4) at (202) 461-7014.



Robert A. Petzel, M.D.

Under Secretary for Health's Comments to Office of Inspector General's Report

The following Under Secretary for Health's comments are submitted in response to the recommendations in the Office of Inspector General's report:

OIG Recommendations

Recommendation 1: We recommended that the Under Secretary for Health consider the wide-ranging medical needs of traumatic amputees beyond the prosthetic and mental health concerns identified in this report; then adjust, if necessary, the provision and management of healthcare services accordingly.

VHA Response

Concur

Veterans with traumatic major limb amputations represent a population with wide-ranging medical needs, and this consideration was one of the driving forces behind implementation of the Veterans Health Administration (VHA) Amputation System of Care (ASoC). VHA developed the ASoC in partnership with the VHA Polytrauma System of Care to ensure that Veterans with both traumatic amputation and polytrauma can be provided comprehensive and coordinated services. Several initiatives have been implemented to further advance the ASoC and address the wide range needs of traumatic amputees, including:

- Amputation Rehabilitation Coordinator positions were established for the purpose of coordinating the wide-ranging medical and rehabilitation needs of a Veteran with an amputation;
- VHA Outpatient Amputation Clinics were enhanced to be more interdisciplinary and comprehensive in nature to meet the complex needs of the Veteran amputee;
- The ASoC partnered with the Amputee Coalition, a national advocacy group for persons with amputations, to develop both peer support and caregiver support programs to ensure that VHA is meeting the health care needs of Veterans with amputations, as well as their family members;

- VHA has provided specialized training to physical medicine and rehabilitation physicians and other amputation clinic providers responsible for ensuring that all medical, rehabilitation, and prosthetic needs of the Veteran are being met;
- VHA developed amputation specific content for the Veterans Health Initiative and this content is available to both Veterans and care providers; and
- With implementation of the VHA Patient Aligned Care Team (PACT) program, VHA Rehabilitation Services and the ASoC have been directly involved with the training of primary care providers and other PACT team members regarding the medical needs of Veterans with major limb amputations.

Plans underway for VHA to further address the wide-ranging medical needs of traumatic amputees are detailed in the following action plan:

Target Completion Date: September 30, 2012

- a. VHA will publish an Amputation Clinic Learning Module on the Talent Management System.

Target Completion Date: September 30, 2012.

- b. VHA will ensure representation from Rehabilitation Services at all upcoming PACT specialty care training sessions.

Target Completion Date: January 1, 2013.

- c. VHA will develop an education program for PACT teams regarding the wide-ranging medical needs of Veterans with traumatic amputations.

Recommendation 2: We recommended that the Under Secretary for Health consider that VHA evaluate the needs of veterans with traumatic upper limb amputations to improve their satisfaction.

VHA Response

Concur

Veterans with upper limb amputations are a relatively small percentage of the overall amputee population, but represent a population of individuals with unique health care needs, including adherent scar tissue, skin grafts, and phantom limb pain. Also, current prosthetic technology is limited in replicating the complex functions and cosmetic appearance of the human upper limb. These variables tend to make prosthetic limb fitting, use, and satisfaction challenging.

VHA has been working to meet these challenges through a host of clinical and research efforts:

- VHA has sponsored clinical education and training specific to upper limb amputations for VA providers;
- VHA has studied and published research on the unique characteristics and satisfaction rates of the Veteran with an upper limb amputation; and
- VHA is involved in the research and development of new prosthetic technology and prosthetic components such as the DEKA arm.

Plans underway for VHA to address the needs of Veterans with upper limb amputations to improve their satisfaction are detailed in the following action plan:

Target Completion Date: September 30, 2012

- a. VHA will evaluate the need for a Clinical Practice Guideline for management of the care for a Veteran with an upper limb amputation.

Target Completion Date: September 30, 2012

- b. VHA will explore opportunities for collaboration with current and future VA pain management initiatives to enhance pain management for the Veteran with an upper limb amputation through the formation of a workgroup.

Target Completion Date: September 30, 2012

- c. VHA Prosthetic and Sensory Aids Service will explore opportunities for collaboration with the VHA Office of Research and Development to determine satisfaction among Upper Extremity Amputees.

Target Completion Date: September 30, 2012

- d. VHA will sponsor an Amputation Advanced Skills Conference with emphasis on upper limb amputation.

Recommendation 3: We recommended that the Under Secretary for Health consider veterans' concerns with VA approval processes for fee-basis and VA contract care for prosthetic services to meet the needs of veterans with amputations.

VHA Response

Concur

VHA appreciates Veterans' concerns raised in this report regarding the VA approval processes for fee-basis and VA contract care for prosthetic services. These issues are currently being examined by VHA, and the following additional actions will be taken to address the concerns raised in the report:

Target Completion Date: July 1, 2012

- a. VHA will provide eligible Veterans with service-connected amputations with prosthetic service cards (PSC) and provide education on the use of the PSC for repairs.

Target Completion Date: June 30, 2013

- b. VHA will refine the artificial limb quote process to minimize the time between prescription and purchase order completion.

Target Completion Date: September 30, 2012

- c. VHA will improve procurement practices by developing a new contract template and providing guidance to the field on pricing for Not Otherwise Classified (NOC) coded items.

OIG Contact and Staff Acknowledgments

OIG Contact	For more information about this report, please contact the Office of Inspector General at (202) 461-4720.	
Acknowledgements	<p>Limin Clegg, PhD Cathleen King, MHA, CRRN Robert Yang, MD</p> <p>Rose Griggs, MS, LCSW Gayle Karamanos, MS, PA-C Nathan McClafferty, MS Trina Rollins, MS, PA-C Larry Ross, MS</p> <p>Bruce Barnes Lisa Barnes, MSW Donald Braman, RN Debra Boyd-Seale, RN, PhD Gail Bozzelli, RN Verena Briley-Hudson, ARNP, MN Paula Chapman, CTRS Darlene Conde-Nadeau, ARNP, MSN Laura Dulcie, BSEE David Griffith, RN, FAIHQ Wachita Haywood, RN Stephanie Hensel, RN, JD Jeffrey Joppie, BS Claire McDonald, MPA Karen McGoff-Yost, LCSW, MSW Diane McNamara, RN, MS</p> <p>Patrick Smith, MS Yurong Tan, PhD Maureen Washburn, RN, ND Jarvis Yu, MS Misti Kincaid, BS</p> <p>Frank Miller, PhD Alice Morales-Rullan, MSN, CNS Karen Moore, RNC, MSHA Sami O'Neill, MA Ronald R. Penny, BS Glen Pickens, RN, MHSM Simonette Reyes, RN, BSN Kathleen Shimoda, RN, BSN Christa Sisterhen, MCD Virginia Solana, RN, MA Lynn Sweeney, MD Carol Torczon, ACNP, MSN Susan Tostenrude, MS Ann Ver Linden, RN, MBA</p>	
Special Acknowledgements	<p>Office of Inspector General, U.S. Department of Defense DoD clinicians and TRICARE managers responsible for Rehabilitation and Amputee related programs</p>	

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